

# **EXHIBIT B35**

IN THE UNITED STATES DISTRICT COURT  
FOR THE DISTRICT OF NEW JERSEY

IN RE: JOHNSON & JOHNSON  
TALCUM POWDER PRODUCTS  
MARKETING SALES  
PRACTICES, AND PRODUCTS  
LIABILITY LITIGATION } MDL NO.16-2738 (FLW) (LHG)

VIDEO-RECORDED DEPOSITION OF  
MARK W. RIGLER, PH.D.

February 6, 2019  
9:14 a.m.

11340 Lakefield Drive  
Suite 200  
Johns Creek, Georgia

Frances Buono, RPR, CCR-B-791

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 Article 10.B. of the Rules and Regulations of  
 the Board of Court Reporting of the Judicial  
 Council of Georgia.)  
 (Identification statement by  
 videographer.)

MARK W. RIGLER, PH.D.,  
 having been first duly sworn, was examined and  
 testified as follows:

## EXAMINATION

BY MR. CHACHKES:

Q. Good morning, Dr. Rigler.  
 A. **Good morning.**  
 Q. How are you?  
 A. **Good; you?**  
 Q. Good.  
 MR. CHACHKES: So just for the record, I  
 have the same late production objections as  
 yesterday and the same request to keep the  
 deposition open. I assume you have the same?  
 MS. O'DELL: We have the same opposition.  
 Q. (By Mr. Chachkes) Okay. So what I've  
 done is I've brought some exhibits from yesterday, so  
 if you're wondering why there's stamps on them, it's  
 because they're the stamps from Dr. Longo's

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(Original Exhibits 1 through 4 have been  
 attached to the original transcript.)

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deposition. We are going to use some of the same  
 exhibits, if that's okay.

A. **Yes.**

Q. So what's been marked yesterday -- so all  
 the stamps are February 5, 2019, Longo. And I'm  
 going to use those exhibits unless I use a new  
 exhibit.

A. **Okay.**

Q. So I'm just going to hand you what's been  
 marked yesterday as Exhibit 2. And you recognize  
 that as the January 15 version of the report that you  
 cosigned?

A. **Yes.**

Q. Okay. And what was your involvement in  
 drafting this report?

A. **I reviewed the report, looked over the  
 data, and made typographical and grammatical  
 corrections throughout the report.**

Q. Okay. Do you feel qualified to testify to  
 every matter that's in that report?

MS. O'DELL: Object to the form.

THE WITNESS: As I say, I am qualified to  
 testify on what's in this report now, yes.

Q. (By Mr. Chachkes) Okay. So if Dr. Longo  
 were to, for example, not show up at a trial, you

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09:16:20 **1** could testify to everything that you could testify  
 09:16:21 **2** to?  
 09:16:22 **3 A. Well, I'm not Dr. Longo, of course.**  
 09:16:26 **4 However, I can testify as to what's in this report,**  
 09:16:29 **5 yes.**  
 09:16:29 **6 Q.** Okay. To what degree is Dr. Longo more  
 09:16:33 **7** qualified about something in that report than you?  
 09:16:36 **8 A. Dr. Longo has a degree in materials**  
 09:16:39 **9 science, and my degree is in microbiology, my Ph.D.**  
 09:16:44 **10 So he has more experience in the materials area, so I**  
 09:16:53 **11 would, you know, defer to him on those topics.**  
 09:16:57 **12 Q.** Okay. Well, there's no microbiology in  
 09:17:01 **13** the report; right?  
 09:17:02 **14 A. Not that I know of, no. But there are**  
 09:17:04 **15 microscopic things in the report, and that's one of**  
 09:17:07 **16 my areas of qualification, electron microscopy and**  
 09:17:12 **17 the microscopic world, if you will.**  
 09:17:14 **18 Q.** So that's sort of a comparison of your  
 09:17:16 **19** relative expertise. What about your relative ability  
 09:17:19 **20** to talk about substantive matters, data, you know,  
 09:17:23 **21** what analysts did? Is there any difference there  
 09:17:26 **22** between you and Dr. Longo?  
 09:17:27 **23 A. Well, Dr. Longo is the head of the**  
 09:17:31 **24 laboratory, so I would defer to him on a number of**  
 09:17:35 **25 those areas, and specific areas.**  
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09:17:38 **1 Q.** Okay. For example?  
 09:17:39 **2 A. Well, for example, there may be some**  
 09:17:42 **3 situations where he directed the study and that**  
 09:17:49 **4 would -- I would defer those things to him.**  
 09:17:51 **5 Q.** Did you direct any of the studies in that  
 09:17:54 **6** report?  
 09:17:54 **7 A. As far as me directing the studies in**  
 09:17:57 **8 here, that was mainly Dr. Longo.**  
 09:17:58 **9 Q.** Okay. What studies in there did you  
 09:18:02 **10** direct?  
 09:18:03 **11 A. Again, they were mainly directed by**  
 09:18:06 **12 Dr. Longo.**  
 09:18:06 **13 Q.** You say mainly. I'm just wondering is  
 09:18:09 **14** there anything left over that you directed?  
 09:18:11 **15 MS. O'DELL:** Object to the form.  
 09:18:12 **16 THE WITNESS:** In terms of the study  
 09:18:16 **17** process, originally we conferred on it in the  
 09:18:20 **18** very beginning, but Dr. Longo was the one who  
 09:18:24 **19** mainly carried out the processes and direction  
 09:18:28 **20** of the studies.  
 09:18:29 **21 Q.** (By Mr. Chachkes) Okay. So the  
 09:18:31 **22** conceptualization of the experimental procedures you  
 09:18:35 **23** participated, but in the actual execution you did not  
 09:18:38 **24** participate?  
 09:18:39 **25 MS. O'DELL:** Object to the form.  
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09:18:40 **1 THE WITNESS:** Well, in terms of looking at  
 09:18:42 **2** data, quality control issues, that type of  
 09:18:45 **3** thing, which would be part of the study, I would  
 09:18:47 **4** say, yes, I was part of that.  
 09:18:49 **5 Q.** (By Mr. Chachkes) Okay. So the actual  
 09:18:51 **6** experimentation process, the -- people call it wet  
 09:18:54 **7** work; are you familiar with that?  
 09:18:55 **8 A. Yes.**  
 09:18:56 **9 Q.** Okay. So the actual experimental process  
 09:18:58 **10** and the wet work, you did not participate in that?  
 09:19:01 **11 A. Again, Dr. Longo directed those activities**  
 09:19:06 **12 in this study; and again, I will defer those things**  
 09:19:10 **13 to him, you know, if -- once we get to those topics**  
 09:19:14 **14 and we talk about those topics, because right now**  
 09:19:17 **15 we're talking about things in general.**  
 09:19:18 **16 Q.** I'm not asking about Dr. Longo. I'm  
 09:19:20 **17** asking about you.  
 09:19:20 **18 A. Sure.**  
 09:19:21 **19 Q.** What in the report -- which experiments  
 09:19:23 **20** did you participate in, if any?  
 09:19:24 **21 A. I told you in the beginning what I did**  
 09:19:28 **22 here, which was mainly review the data, review the**  
 09:19:31 **23 report for typographical or grammatical errors, also**  
 09:19:36 **24 checking data, that type of thing.**  
 09:19:38 **25 Q.** So can you confirm you did not participate  
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09:19:41 **1** in the actual experimenting that's reported on in the  
 09:19:44 **2** exhibit?  
 09:19:44 **3 MS. O'DELL:** Object to the form.  
 09:19:47 **4 THE WITNESS:** Again, I was part of the  
 09:19:48 **5** study working on part of the study, so I  
 09:19:50 **6** consider myself as someone who participated in  
 09:19:53 **7** the study.  
 09:19:53 **8 Q.** (By Mr. Chachkes) Okay. So --  
 09:19:55 **9 A. That's the way it works in the laboratory.**  
 09:19:57 **10 Q.** Let's be more specific.  
 09:19:58 **11 A. Sure.**  
 09:19:59 **12 Q.** So you understand what an experiment is;  
 09:20:04 **13** right?  
 09:20:04 **14 MS. O'DELL:** In what context?  
 09:20:07 **15 THE WITNESS:** Yeah, in what context?  
 09:20:08 **16 Q.** (By Mr. Chachkes) Okay. So you're  
 09:20:09 **17** unclear on what an experiment is?  
 09:20:11 **18 A. No, I'm not unclear on what an experiment**  
 09:20:13 **19 is. I'm wondering what you're asking as far as your**  
 09:20:15 **20 question.**  
 09:20:15 **21 Q.** What does the word experiment mean to you?  
 09:20:17 **22 A. Well, it would be a set of tests after**  
 09:20:21 **23 coming up with a hypothesis about a particular**  
 09:20:23 **24 situation what the questions are.**  
 09:20:25 **25 Q.** Let's use your definition. Were you  
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09:20:26 **1** involved in any experiments where you were actually  
 09:20:29 **2** testing -- testing -- J&J bottles of talc?  
 09:20:35 **3** **A. I was not -- I was not handling and**  
 09:20:39 **4 testing the talc myself. Our analysts in the**  
 09:20:42 **5 laboratory were directed to do that.**  
 09:20:44 **6** **Q. Did you ever use a PLM for the purposes of**  
 09:20:48 **7 this report?**  
 09:20:49 **8** **A. No, I did not.**  
 09:20:50 **9** **Q. Did you ever use a TEM for the purposes of**  
 09:20:52 **10 this report?**  
 09:20:53 **11** **A. Not for the purposes of this report.**  
 09:20:55 **12** **Q. Did you ever use an XRD device for the**  
 09:20:59 **13 purposes of this report?**  
 09:21:01 **14** **A. We do not have the XRD device or that type**  
 09:21:04 **15 of device at our laboratory.**  
 09:21:06 **16** **Q. Did you ever do an SAED experiment for the**  
 09:21:08 **17 purposes of this report?**  
 09:21:10 **18** **A. Again, same answer as with the TEM.**  
 09:21:13 **19** **Q. So that's a no?**  
 09:21:15 **20** **A. Correct.**  
 09:21:16 **21** **Q. Okay. And did you ever do EDXA work**  
 09:21:21 **22 experiments on J&J bottles of talc for this report?**  
 09:21:24 **23** **A. That would be the same answer.**  
 09:21:26 **24** **Q. Which is a no?**  
 09:21:26 **25** **A. Yes.**

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09:21:27 **1** **Q. And did you -- let's -- so once the**  
 09:21:36 **2 experiments were done and you saw the data, did you**  
 09:21:39 **3 do any substantive contribution to the report other**  
 09:21:46 **4 than correct typos?**  
 09:21:47 **5** **MS. O'DELL: Object to the form.**  
 09:21:48 **6** **THE WITNESS: In terms of looking at what**  
 09:21:50 **7 was done during the study and working with the**  
 09:21:55 **8 TEM manager on the study and the quality**  
 09:21:59 **9 control, yes.**  
 09:22:00 **10** **Q. (By Mr. Chachkes) Okay. So can you be**  
 09:22:02 **11 more specific? So you did quality control. What's**  
 09:22:04 **12 that?**  
 09:22:04 **13** **A. Well, I monitored the reporting that was**  
 09:22:08 **14 done in terms of what samples were analyzed, what**  
 09:22:12 **15 replicates, duplicates, and blanks that would be**  
 09:22:16 **16 tested in terms of what were necessary for us to meet**  
 09:22:20 **17 the QC standards.**  
 09:22:22 **18** **Q. Okay. And who set the QC standards?**  
 09:22:25 **19** **A. Well, the QC standards are set by NVLAP**  
 09:22:30 **20 NIST, the National Institutes of Standard and**  
 09:22:34 **21 Technology, for TEM labs that are analyzing for**  
 09:22:36 **22 asbestos.**  
 09:22:36 **23** **Q. Other than ensure that folks complied with**  
 09:22:42 **24 the QC standards, what did you do?**  
 09:22:46 **25** **So let's say after the experiments were**

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09:22:48 **1** done, you had the data?  
 09:22:49 **2** **A. Well, then I would review the data, go**  
 09:22:54 **3 through the data, and then see again if it met the QC**  
 09:22:59 **4 qualifications.**  
 09:23:01 **5** **Q. Okay. Anything else that you did once the**  
 09:23:03 **6 data was done?**  
 09:23:04 **7** **A. Not that I can recall as I sit here.**  
 09:23:09 **8** **Q. Okay. During any of the experiments did**  
 09:23:13 **9 you sit over the shoulder of any analyst and watch**  
 09:23:17 **10 the work they were doing?**  
 09:23:18 **11** **A. Yeah. I'm at the laboratory mostly on a**  
 09:23:23 **12 daily basis, so I was able to go in and look and see**  
 09:23:25 **13 what analysts were doing at any particular time.**  
 09:23:28 **14** **Q. Okay. Were you substantively contributing**  
 09:23:33 **15 at those moments when you were looking at what**  
 09:23:35 **16 analysts were doing?**  
 09:23:36 **17** **A. What do you mean by that?**  
 09:23:37 **18** **Q. Well, were you telling them to change**  
 09:23:41 **19 their behavior or to do something that they weren't**  
 09:23:43 **20 otherwise going to do? Anything that affected their**  
 09:23:46 **21 experimental work?**  
 09:23:47 **22** **MS. O'DELL: Object to the form.**  
 09:23:48 **23** **THE WITNESS: No. No.**  
 09:23:48 **24** **Q. (By Mr. Chachkes) And so you're an**  
 09:23:52 **25 employee of MAS?**

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09:23:53 **1** **A. Yes.**  
 09:23:53 **2** **Q. How long have you been an employee there?**  
 09:23:55 **3** **A. Over 30 years.**  
 09:23:57 **4** **Q. Let's go back to the report. Are there**  
 09:24:04 **5 any sections of the report that you can say you**  
 09:24:06 **6 didn't work on?**  
 09:24:08 **7** **MS. O'DELL: Object to the form.**  
 09:24:09 **8** **THE WITNESS: I would have to look. If**  
 09:24:14 **9 you're talking about the reports in front of me**  
 09:24:16 **10 here --**  
 09:24:17 **11** **Q. (By Mr. Chachkes) Yes, the January 15**  
 09:24:19 **12 expert report for the MDL.**  
 09:24:20 **13** **A. The J3 portions of the report.**  
 09:24:24 **14** **Q. And you would say you had some involvement**  
 09:24:26 **15 in all other portions?**  
 09:24:28 **16** **A. In other portions, yes.**  
 09:24:29 **17** **Q. How much time did you devote to the work**  
 09:24:32 **18 underlying this report and the report itself?**  
 09:24:34 **19** **A. I didn't keep track of it. I have no**  
 09:24:39 **20 idea.**  
 09:24:39 **21** **Q. Over 10 hours?**  
 09:24:41 **22** **A. Probably over 10 hours.**  
 09:24:42 **23** **Q. Over 20 hours?**  
 09:24:43 **24** **A. Again, that would be a guesstimate. I**  
 09:24:45 **25 don't know beyond that.**

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09:24:47 **1 Q.** More than 15 hours?

09:24:48 **2 A.** **I don't know.**

09:24:49 **3 Q.** So probably over 10 hours, but you don't

09:24:52 **4** know beyond that?

09:24:52 **5 A.** **Correct.**

09:24:53 **6 Q.** Okay. And were you involved in the

09:24:58 **7** creation of the protocols to test J&J talc in this

09:25:03 **8** case?

09:25:04 **9 A.** **In terms of the protocols for the testing,**

09:25:09 **10 we used standard methods throughout for the analysis.**

09:25:14 **11 Dr. Longo essentially put together the way the test**

09:25:18 **12 or the study was going to be done, but we, you know,**

09:25:21 **13 overall use the standard methods throughout.**

09:25:23 **14 Q.** When you say Dr. Longo put together the

09:25:26 **15** way -- you said the way the studies would be

09:25:28 **16** conducted?

09:25:29 **17 A.** **Yes.**

09:25:29 **18 Q.** Was that something in writing?

09:25:31 **19 A.** **Well, he directs the study on a daily**

09:25:35 **20 basis.**

09:25:35 **21 Q.** The question is was it in writing?

09:25:38 **22 A.** **Was it in writing? I don't know. You'd**

09:25:42 **23 have to ask Dr. Longo.**

09:25:43 **24 Q.** Okay. So you're unaware of whether he

09:25:46 **25** communicated with the analysts about protocol in  
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09:25:48 **1** writing?

09:25:49 **2 A.** **Well, the --**

09:25:50 **3** MS. O'DELL: Object to form.

09:25:51 **4** THE WITNESS: -- laboratory has protocol

09:25:52 **5** for the way that talc is analyzed and

09:25:59 **6** asbestos-bearing products are analyzed, so we

09:26:01 **7** have written protocol for those things.

09:26:03 **8** MR. CHACHKES: Okay. And I think I've

09:26:06 **9** requested that those be produced. I don't think

09:26:07 **10** those have been produced.

09:26:09 **11** MS. O'DELL: I think it's reflected in his

09:26:11 **12** report, but we will consider your request.

09:26:13 **13 Q.** (By Mr. Chachkes) Okay. Do you

09:26:21 **14** communicate with the analysts by email at all?

09:26:23 **15 A.** **Communicate with the analysts by email?**

09:26:26 **16 No. I can go speak to them.**

09:26:29 **17 Q.** Okay. There's no sort of like weekly

09:26:33 **18** email or monthly email where you summarize what's

09:26:36 **19** going on?

09:26:37 **20 A.** **No.**

09:26:37 **21 Q.** Did you ever change an analyst's

09:26:42 **22** determinations where an analyst came up with some

09:26:44 **23** conclusion and you said maybe that's not right, go

09:26:46 **24** back?

09:26:47 **25 A.** **No.**

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09:26:49 **1 Q.** Do you consider yourself an expert in TEM

09:26:56 **2** analysis?

09:26:56 **3 A.** **Well, the term expert, I think, you**

09:27:00 **4 probably have to defer that to the court. I mean, I**

09:27:04 **5 have more than the layperson's knowledge so -- but I**

09:27:08 **6 would defer that to the court.**

09:27:10 **7 Q.** Okay. Have you --

09:27:13 **8 A.** **I mean, I've been qualified as an expert**

09:27:16 **9 before, but in this case...**

09:27:19 **10 Q.** When is the first time you ever used a

09:27:21 **11** TEM?

09:27:21 **12 A.** **The first time I used a TEM? Let's see.**

09:27:24 **13 That would probably have been sometime in the early**

09:27:29 **14 '80s, I would say, yeah.**

09:27:31 **15 Q.** How many times have you used an SAED to

09:27:35 **16** characterize a particle?

09:27:36 **17 A.** **SAED?**

09:27:37 **18 Q.** SAED.

09:27:39 **19 A.** **I don't know if I could count the number**

09:27:40 **20 of times.**

09:27:41 **21 Q.** How many times have you used EDXA to

09:27:45 **22** characterize a particle?

09:27:47 **23 A.** **Same answer on that. Yes.**

09:27:48 **24 Q.** What about PLM, do you consider yourself

09:27:53 **25** an expert on PLM?  
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09:27:54 **1 A.** **I am not a PLM microscopist.**

09:27:56 **2 Q.** Okay. What was your contribution to the

09:27:58 **3** PLM aspects of the January 15 report?

09:28:03 **4 A.** **Well, as far as PLM contributions, again,**

09:28:07 **5 I'm not the PLM analyst, so we just wanted to be sure**

09:28:13 **6 that the quality program was being followed in the**

09:28:18 **7 laboratory.**

09:28:18 **8 Q.** When you say that a quality program was

09:28:21 **9** being followed, is that the same contribution you

09:28:31 **10** made to the other portions of the report?

09:28:33 **11** MS. O'DELL: Object to form.

09:28:34 **12** THE WITNESS: Yes. Well, I would say yes

09:28:35 **13** to that. Yes.

09:28:36 **14 Q.** (By Mr. Chachkes) Okay. Did you ever

09:28:43 **15 personally test a talc sample for asbestos**

09:28:45 **16 contamination?**

09:28:46 **17 A.** **Did I ever personally test them?**

09:28:48 **18 Q.** Yes.

09:28:48 **19 A.** **Not that I can recall as I sit here.**

09:28:50 **20 Q.** Okay.

09:28:55 **21 A.** **We've done tissue testing for talc and**

09:29:00 **22 asbestos in tissue, yes.**

09:29:01 **23 Q.** But just testing talcum powder that came

09:29:05 **24** out of a bottle, you've never done that?

09:29:07 **25 A.** **I've not personally tested that.**

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09:29:09 **1 Q.** You have an undergraduate degree in  
 09:29:21 **2 biology?**  
 09:29:21 **3 A. Yes.**  
 09:29:21 **4 Q.** And a Ph.D. in microbiology?  
 09:29:24 **5 A. Yes.**  
 09:29:24 **6 Q.** Did you take any geology courses at any  
 09:29:27 **7 point in your education?**  
 09:29:27 **8 A. No, but at the University of Georgia one**  
 09:29:31 **9 of my very good friends in graduate school was a**  
 09:29:34 **10 geologist, and we discussed a lot of issues**  
 09:29:38 **11 surrounding the phyllosilicates. He was a kaolin**  
 09:29:44 **12 person. He was a clay person.**  
 09:29:44 **13 In Georgia we have a lot of red clay, and**  
 09:29:46 **14 so that was one of his areas that he enjoyed, and I**  
 09:29:51 **15 learned quite a bit from him. Very strong geology**  
 09:29:56 **16 department at the University of Georgia.**  
 09:29:57 **17 Q.** Other than talking to a friend about  
 09:29:59 **18 geology, do you have any formal geology education?**  
 09:30:03 **19 MS. O'DELL: Object to form.**  
 09:30:04 **20 THE WITNESS: No.**  
 09:30:04 **21 Q.** (By Mr. Chachkes) Did you take any  
 09:30:06 **22 mineralogy courses during any part of your**  
 09:30:07 **23 educations?**  
 09:30:07 **24 A. It's interesting because in the electron**  
 09:30:11 **25 microscopy courses that you take, the substances that**  
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09:30:17 **1 we analyzed, you know, varied from biological**  
 09:30:20 **2 substances to mineralogical substances. So you would**  
 09:30:24 **3 get a portion of that with that training, and I got**  
 09:30:27 **4 some of that.**  
 09:30:28 **5 Q.** Okay. Have you ever physically analyzed a  
 09:30:33 **6 mineral under a microscopy technique?**  
 09:30:36 **7 A. I, again, think the answer to that is I**  
 09:30:41 **8 have sat with the analysts, that includes the PLM**  
 09:30:46 **9 analysts, watched them do the work, and participated**  
 09:30:51 **10 that way in terms of the -- that kind of an analysis.**  
 09:30:55 **11 Q.** Other than watching other people analyze  
 09:30:57 **12 minerals under microscopy techniques, have you any**  
 09:31:01 **13 experience analyzing minerals under microscopy**  
 09:31:03 **14 techniques?**  
 09:31:03 **15 A. Well, by electron microscopy in terms of**  
 09:31:09 **16 seeing these minerals and having run into them during**  
 09:31:13 **17 an analysis. And again, I've been doing electron**  
 09:31:17 **18 microscopy since the '80s, so the tissue analysis**  
 09:31:21 **19 that I've done in the past we've come across, you**  
 09:31:26 **20 know, mineral types and there's tissues and how to**  
 09:31:28 **21 analyze those. So I've done that in tissue samples**  
 09:31:32 **22 at the optical or the bulk PLM level very limited,**  
 09:31:37 **23 say.**  
 09:31:37 **24 Q.** Okay. Have you ever personally run a  
 09:31:39 **25 microscopy analysis of minerals that aren't in**  
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09:31:44 **1 tissue?**  
 09:31:45 **2 A. Yes.**  
 09:31:48 **3 Q.** Can you explain?  
 09:31:49 **4 A. Again, at MAS I've had a variety of roles**  
 09:31:55 **5 from the early '90s when I was hired there; and MAS**  
 09:32:02 **6 is a materials characterization laboratory, so I**  
 09:32:06 **7 worked on hundreds of different kinds of projects**  
 09:32:09 **8 using microscopy and gas chromatography, all kinds of**  
 09:32:15 **9 chemical techniques.**  
 09:32:16 **10 So I have run into situations where I've**  
 09:32:18 **11 examined minerals that have been in materials such as**  
 09:32:22 **12 plastics or polymers, for instance, where we have**  
 09:32:25 **13 done cutting or thin sectioning of that kind of**  
 09:32:29 **14 material, and you would look at the inclusions in the**  
 09:32:32 **15 polymers because they are -- they're additives, they**  
 09:32:36 **16 may be for a variety of different reasons, and then**  
 09:32:39 **17 you end up analyzing them or seeing them. And this**  
 09:32:43 **18 was mostly by SEM or TEM.**  
 09:32:46 **19 Q.** And you personally did those experiments?  
 09:32:48 **20 A. Yes, I've personally done those things.**  
 09:32:50 **21 Q.** Have you ever personally done a microscopy  
 09:32:52 **22 investigation of a mineral or a solid solution that's**  
 09:32:56 **23 just mineral or solid solution?**  
 09:32:59 **24 A. Can you explain a bit more?**  
 09:33:01 **25 Q.** Do you know what a solid solution is?  
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09:33:03 **1 A. Yes.**  
 09:33:03 **2 Q.** So, for example, a bottle of talc just  
 09:33:06 **3 contains minerals; right?**  
 09:33:08 **4 A. Yes.**  
 09:33:08 **5 Q.** Okay. So have you ever --  
 09:33:09 **6 MS. O'DELL: Object to the form.**  
 09:33:10 **7 Q.** (By Mr. Chachkes) -- personally done a  
 09:33:12 **8 microscopy analysis of something that just contains**  
 09:33:15 **9 minerals, doesn't contain anything else like plastics**  
 09:33:18 **10 or other things?**  
 09:33:19 **11 A. Well, I think if you look at it from the**  
 09:33:23 **12 viewpoint of if you have a plastic or whatever it may**  
 09:33:29 **13 be and a mineral inclusion in there, you're looking**  
 09:33:31 **14 at the mineral, you know, aside from the other**  
 09:33:33 **15 polymeric material that's there. So the answer to**  
 09:33:36 **16 that is yes. And as far as a solid solution series**  
 09:33:39 **17 mineral, yes.**  
 09:33:40 **18 Q.** Okay. I want to be clear what you're  
 09:33:42 **19 answering because you've talked about plastics, and**  
 09:33:44 **20 my question was saying expressly exclude those. So**  
 09:33:47 **21 let me ask it again just to make sure I have a clear**  
 09:33:50 **22 answer.**  
 09:33:50 **23 A. All right.**  
 09:33:50 **24 Q.** Have you ever personally done a microscopy  
 09:33:53 **25 analysis of minerals and only minerals, where it's**  
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09:33:57 **1** just minerals you're looking at?

09:33:58 **2 A. The answer to that is yes.**

09:34:00 **3 Q. Okay. Can you give me an example?**

09:34:02 **4 A. Again, I will go back to studies that**

09:34:06 **5 we've done on client samples over the years, most of**

09:34:10 **6 them being particulate types of samples. In the**

09:34:13 **7 early days when I came to MAS, we were looking at a**

09:34:16 **8 lot of asbestos-bearing materials. So part of my**

09:34:21 **9 training at the company was looking at those**

09:34:24 **10 materials by SEM or TEM.**

09:34:26 **11 Q. Okay. So those asbestos-bearing materials**

09:34:28 **12 were only minerals, the -- you say asbestos-bearing,**

09:34:32 **13 but the thing that was bearing them was minerals?**

09:34:34 **14 A. Yeah. I mean, if you're looking at**

09:34:36 **15 something like vermiculite, you know, pure -- yeah.**

09:34:39 **16 Q. Got it. Did you take any crystallography**

09:34:43 **17 courses during your education?**

09:34:44 **18 A. Once again, that's part of the TEM**

09:34:47 **19 training that I got.**

09:34:48 **20 Q. Okay. Was the TEM training you got, that**

09:34:50 **21 was, I'm sorry, in college?**

09:34:52 **22 A. Yeah, in graduate school.**

09:34:53 **23 Q. Graduate school. Was that a particular**

09:34:55 **24 course, or was that just part of your thesis work?**

09:34:58 **25 A. No, that's a course. They had courses in**  
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09:35:01 **1 scanning electron microscopy and transmission**

09:35:04 **2 electron microscopy, and those were all part of the**

09:35:06 **3 course that you took. You had to learn about**

09:35:11 **4 electron optics; you had to learn about how electrons**

09:35:14 **5 interact with materials. So that would all be part**

09:35:18 **6 of my training.**

09:35:19 **7 Q. Okay. You're not a geologist?**

09:35:21 **8 A. That's correct.**

09:35:22 **9 Q. You're not a mineralogist?**

09:35:24 **10 A. No.**

09:35:24 **11 Q. Okay. You're not a crystallographer?**

09:35:28 **12 A. Well, I know crystallography. But as far**

09:35:31 **13 as being a, quote, crystallographer, if there is such**

09:35:35 **14 a person that just specializes in that, the answer is**

09:35:37 **15 no.**

09:35:37 **16 Q. You're not a certified industrial**

09:35:39 **17 hygienist?**

09:35:39 **18 A. Correct.**

09:35:39 **19 Q. You have done exposure assessments;**

09:35:42 **20 correct?**

09:35:42 **21 A. Yes.**

09:35:42 **22 Q. Okay. Have you done exposure studies?**

09:35:46 **23 A. The answer to that is I have been involved**

09:35:49 **24 in exposure studies, yes.**

09:35:51 **25 Q. Okay. You're not a pathologist?**  
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09:35:56 **1 A. No, I'm not a medical doctor.**

09:35:57 **2 Q. Okay. You don't have any medical**

09:35:59 **3 training?**

09:36:00 **4 A. Well, the medical training I have is**

09:36:03 **5 related to my training as a -- in undergraduate as a**

09:36:09 **6 biologist. The curriculum that I took at Villanova**

09:36:15 **7 was for premed, and that included courses that**

09:36:18 **8 doctors would take prior to medical school, things**

09:36:21 **9 like histotechnique, which is the study of how you**

09:36:26 **10 prepare tissues, how to prepare and section those**

09:36:29 **11 tissues. Also, you know, you would -- I took**

09:36:33 **12 comparative anatomy. I taught anatomy at Emory**

09:36:38 **13 University for a semester down here in Atlanta.**

09:36:42 **14 So I have training in a number of areas**

09:36:45 **15 that doctors would have, all the way from neurology**

09:36:49 **16 to pathology, that type of thing.**

09:36:50 **17 Q. You're not a statistician?**

09:36:52 **18 A. No. But we use statistics in our work.**

09:36:55 **19 Q. Okay. You're not a geostatistician?**

09:36:58 **20 A. No.**

09:36:58 **21 Q. Have you ever created a method for**

09:37:10 **22 microscopy investigation that has been published in a**

09:37:15 **23 peer-reviewed publication?**

09:37:15 **24 A. Yes.**

09:37:16 **25 Q. Can you give me an example?**  
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09:37:18 **1 A. I would say we did a study a number of**

09:37:24 **2 years ago on the famous Kent Micronite filter. It**

09:37:31 **3 was a blue filter that was with -- made by Lorillard**

09:37:36 **4 and they put that on cigarettes to essentially be a**

09:37:40 **5 filtration device. So that was one that I did.**

09:37:44 **6 Q. Okay.**

09:37:45 **7 A. And that was published.**

09:37:46 **8 Q. Okay. And that was a methodology for**

09:37:48 **9 investigating the subject matter?**

09:37:50 **10 A. Yes.**

09:37:50 **11 Q. Okay. What about methodologies for**

09:37:57 **12 looking for asbestos in talc?**

09:38:03 **13 A. As far as methodologies for looking for**

09:38:05 **14 asbestos in talc, the answer to that is yes.**

09:38:07 **15 Q. Okay. So you've published in the**

09:38:08 **16 peer-reviewed --**

09:38:09 **17 A. Oh, I'm sorry, published. No. Not yet.**

09:38:11 **18 Q. Okay. Are you working on something?**

09:38:13 **19 A. Well, I can't confirm or deny that right**

09:38:16 **20 now.**

09:38:16 **21 Q. Well, it's a deposition. You have to.**

09:38:18 **22 A. Well, I can --**

09:38:19 **23 Q. Are you working on something right now?**

09:38:21 **24 A. Our experience with publications is that**

09:38:26 **25 we don't talk about those things because in the past**  
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09:38:30 **1 we were working on a publication and somehow, some**  
 09:38:35 **2 way, some attorney groups got hold of it, and they**  
 09:38:39 **3 influenced the editor on that document. So we don't**  
 09:38:43 **4 talk about those things anymore.**

09:38:45 **5 Q.** Okay. So pending question is: Are you  
 09:38:48 **6** working on a publication about finding talc in  
 09:38:52 **7** asbestos, and you are refusing to answer?

09:38:54 **8** MS. O'DELL: Object to the form.

09:38:56 **9** THE WITNESS: No.

09:38:55 **10** MS. O'DELL: That's not what he said.

09:38:56 **11 Q.** (By Mr. Chachkes) Okay. So are you  
 09:38:57 **12** working on a publication about finding talc in  
 09:38:59 **13** asbestos?

09:39:00 **14 A. No.**

09:39:00 **15** MS. O'DELL: Object to the form.

09:39:01 **16 Q.** (By Mr. Chachkes) I'm sorry. Are you  
 09:39:02 **17** working on a publication about finding asbestos in  
 09:39:04 **18** talc?

09:39:04 **19** MS. O'DELL: Object to the form.

09:39:05 **20** THE WITNESS: I answered the question  
 09:39:07 **21** twice.

09:39:07 **22 Q.** (By Mr. Chachkes) The answer is yes?

09:39:09 **23 A. I just answered the question twice. I**  
 09:39:11 **24 said no.**

09:39:11 **25 Q.** Okay. All right. Are you working on any  
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09:39:18 **1** publications about talc that you hope to get into the  
 09:39:20 **2** peer-reviewed literature?

09:39:21 **3** MS. O'DELL: Object to the form.

09:39:22 **4** THE WITNESS: I've already answered that  
 09:39:25 **5** question before, and I can neither confirm nor  
 09:39:31 **6** deny that right now.

09:39:31 **7 Q.** (By Mr. Chachkes) Okay. I'll give you  
 09:39:32 **8** one more chance. If you would answer the question  
 09:39:35 **9** are you working on any publications about talc that  
 09:39:37 **10** you intend to put in the peer-reviewed literature,  
 09:39:39 **11** and you're refusing to answer?

09:39:40 **12 A. No, I'm not --**

09:39:41 **13** MS. O'DELL: Object to the form.

09:39:43 **14** THE WITNESS: I'm not refusing to answer.  
 09:39:45 **15** I've already answered.

09:39:45 **16 Q.** (By Mr. Chachkes) Your answer is you can  
 09:39:47 **17** neither confirm nor deny?

09:39:49 **18 A. Correct.**

09:39:49 **19 Q.** And that's different from a refusal to  
 09:39:50 **20** answer?

09:39:49 **21** MS. O'DELL: Yes.

09:39:50 **22** THE WITNESS: No, that's an answer.

09:39:51 **23** MR. CHACHKES: Okay. And so, Counsel,  
 09:39:51 **24** that's your position, you're going to not allow  
 09:39:54 **25** that question?

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09:39:55 **1** MS. O'DELL: The question was asked, and  
 09:39:57 **2** the witness answered it.

09:39:58 **3** MR. CHACHKES: Okay.

09:40:00 **4** MR. SILVER: Please note that Imerys will  
 09:40:00 **5** be --

09:40:00 **6** THE REPORTER: I'm sorry, I can't hear  
 09:40:07 **7** you.

09:40:07 **8** MR SILVER: Imerys will be calling the  
 09:40:07 **9** Special Master at the break to have the witness  
 09:40:09 **10** compelled to answer the question, but we will  
 09:40:13 **11** wait for a break now.

09:40:14 **12 Q.** (By Mr. Chachkes) Okay. Has any

09:40:15 **13** governmental body asked you to test talc?

09:40:19 **14 A. Not that I know of, no.**

09:40:20 **15 Q.** Has any School of Public Health asked you  
 09:40:22 **16** to test talc?

09:40:23 **17 A. School of Public Health, no.**

09:40:25 **18 Q.** Have you ever taught any courses to train  
 09:40:27 **19** microscopists?

09:40:30 **20 A. The answer to that is yes, I've been part**  
 09:40:33 **21 of some seminars for training.**

09:40:38 **22 Q.** What seminars?

09:40:42 **23 A. A number of years ago at the American**  
 09:40:46 **24 Industrial Hygiene Conference there was a session on**  
 09:40:48 **25 electron microscopy of asbestos-bearing materials and**

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09:40:52 **1 I had a session in that.**

09:40:53 **2 Q.** And you taught microscopy techniques to  
 09:40:57 **3** the participants?

09:40:57 **4 A. Yes.**

09:40:58 **5 Q.** Have you ever attended a McCrone training  
 09:41:05 **6** or testing class?

09:41:06 **7 A. The answer to that is yes.**

09:41:07 **8 Q.** Can you tell me when?

09:41:08 **9 A. The one that I -- wait a minute. Let me**  
 09:41:11 **10 see if that was McCrone. I think that was -- that**  
 09:41:17 **11 was a different group for training for mold spore**  
 09:41:21 **12 analysis.**

09:41:22 **13 Q.** Okay. So you've tested -- you've tested a  
 09:41:24 **14** McCrone class for mold spore analysis?

09:41:27 **15 A. No. It was another group.**

09:41:28 **16 Q.** Okay. Have you ever attended a McCrone  
 09:41:31 **17** testing or training class?

09:41:32 **18 A. Yes.**

09:41:32 **19 Q.** For asbestos?

09:41:33 **20 A. No. The one that we had, I believe at our**  
 09:41:37 **21 laboratory, we had them come in. Again, it was for**  
 09:41:39 **22 mold analysis, mold spore analysis.**

09:41:42 **23 Q.** Any other McCrone testing or training  
 09:41:44 **24** class that you have attended?

09:41:46 **25 A. Not that I can recall as I sit here.**

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09:41:48 **1 Q.** Okay. Were you consulted by the FDA in  
09:41:53 **2** their recent testing of talc?  
09:41:54 **3 A. No.**  
09:41:55 **4 Q.** Have you been consulted by any foreign  
09:41:59 **5** bodies about testing of talc?  
09:42:01 **6** MS. O'DELL: Object to the form.  
09:42:02 **7 Q.** (By Mr. Chachkes) Foreign countries?  
09:42:04 **8 A. No.**  
09:42:05 **9 Q.** Has any third-party consulted with you  
09:42:14 **10** about the testing of talc that isn't someone who's  
09:42:17 **11** paying you?  
09:42:18 **12** MS. O'DELL: Object to the form.  
09:42:21 **13** THE WITNESS: Ask the question again.  
09:42:22 **14 Q.** (By Mr. Chachkes) Has any third-party --  
09:42:23 **15** has anybody asked you at MAS to consult about testing  
09:42:26 **16** of talc that isn't paying you?  
09:42:28 **17** MS. O'DELL: Object to the form.  
09:42:29 **18** THE WITNESS: Not that I know of. You  
09:42:31 **19** would have to ask Dr. Longo about that.  
09:42:33 **20 Q.** (By Mr. Chachkes) Is all the talc testing  
09:42:36 **21** that you've been involved with been done at the  
09:42:38 **22** request of plaintiffs' lawyers who pay you?  
09:42:40 **23 A. I have no idea who all of the folks are**  
09:42:43 **24 that have asked us to test talc. You would, again,**  
09:42:46 **25 have to ask Dr. Longo.**  
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09:42:47 **1 Q.** You just don't know where the money comes  
09:42:49 **2** from for your work?  
09:42:50 **3** MS. O'DELL: Object to the form.  
09:42:51 **4** THE WITNESS: No.  
09:42:51 **5 Q.** (By Mr. Chachkes) Have you ever testified  
09:42:54 **6** in a federal court about testing talc? A federal  
09:42:57 **7** court.  
09:42:57 **8 A. I don't think so.**  
09:42:59 **9 Q.** Has any federal court ever said your work  
09:43:01 **10** or your methodology has passed Daubert or standards  
09:43:04 **11** for scientific rigor?  
09:43:06 **12 A. I want to say yes to that.**  
09:43:08 **13 Q.** And why do you want to say yes to that?  
09:43:09 **14 A. Because I believe they have, but I would**  
09:43:11 **15 have to check the record.**  
09:43:12 **16 Q.** What about has any federal court ever said  
09:43:14 **17** your methodology or your work regarding to talc  
09:43:19 **18** analysis has passed Daubert standards for scientific  
09:43:22 **19** rigor?  
09:43:23 **20** MS. O'DELL: Object to the form.  
09:43:24 **21** THE WITNESS: That I don't believe has  
09:43:25 **22** been done.  
09:43:27 **23 Q.** (By Mr. Chachkes) How many publications  
09:43:29 **24** do you have in the peer-reviewed literature?  
09:43:31 **25 A. I hadn't counted them. They're on my CV.**  
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09:43:34 **1 You can count them.**  
09:43:35 **2 Q.** How many were not funded by MAS?  
09:43:42 **3** MS. O'DELL: Object to the form.  
09:43:43 **4 Q.** (By Mr. Chachkes) If any?  
09:43:44 **5 A. Not funded by MAS?**  
09:43:46 **6 Q.** Yeah.  
09:43:47 **7 A. None of them were funded by MAS.**  
09:43:49 **8 Q.** Who were they funded by?  
09:43:51 **9 A. Again, most all of them were done as pure**  
09:43:56 **10 research and the -- well, I guess if you're looking**  
09:44:02 **11 at it as funded by, I don't know what you mean by**  
09:44:04 **12 funded by MAS. But we essentially -- when you do a**  
09:44:09 **13 research study, it's typically not funded by anybody.**  
09:44:12 **14 Q.** So this is -- were all your peer-reviewed  
09:44:17 **15** publications done based on work done at MAS?  
09:44:21 **16 A. Yes. Well, not all of them. I mean,**  
09:44:25 **17 there were a lot of them I did at graduate school,**  
09:44:27 **18 yes.**  
09:44:27 **19 Q.** So other than your graduate school  
09:44:29 **20** peer-reviewed publications where your -- are your  
09:44:33 **21** peer-reviewed publications from your work at MAS?  
09:44:35 **22 A. All of them? At this point I'd have to go**  
09:44:41 **23 and look.**  
09:44:41 **24 Q.** Okay.  
09:44:41 **25 A. I can't recall.**  
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09:44:42 **1 Q.** For those peer-reviewed works that you  
09:44:45 **2** published based on work done at MAS, the underlying  
09:44:49 **3** work at MAS was funded by someone; correct?  
09:44:53 **4** MS. O'DELL: Object to the form.  
09:44:54 **5** THE WITNESS: No, not necessarily. No.  
09:44:56 **6** We did work that wasn't funded by others that  
09:45:00 **7** were published.  
09:45:01 **8 Q.** (By Mr. Chachkes) So you've done work at  
09:45:03 **9** MAS that was purely academic, not really funded by  
09:45:07 **10** anybody or for any purpose other than academics?  
09:45:09 **11** MS. O'DELL: Object to the form.  
09:45:10 **12** THE WITNESS: To my knowledge, yes.  
09:45:11 **13 Q.** (By Mr. Chachkes) And how many of your  
09:45:13 **14** publications could qualify as that?  
09:45:15 **15 A. Again, I don't know, I would have to go**  
09:45:19 **16 and look.**  
09:45:19 **17 Q.** Would you agree it's important to disclose  
09:45:23 **18** sources of funding for publications in peer-reviewed  
09:45:27 **19** literature?  
09:45:27 **20 A. Sure.**  
09:45:27 **21 Q.** Are there any publications you have that  
09:45:31 **22** were funded by plaintiffs' lawyer monies?  
09:45:34 **23** MS. O'DELL: Object to the form.  
09:45:36 **24** THE WITNESS: Again, I would have to go --  
09:45:37 **25** I would have to look.  
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09:45:38 **1** Q. (By Mr. Chachkes) Okay.

09:45:39 **2** A. **Off the top of my head, I don't recall.**

09:45:41 **3** Q. But if it were, it would be important to

09:45:43 **4** disclose that fact?

09:45:44 **5** A. **And it would be disclosed because the**

09:45:46 **6** **publications, the editorial process requires that.**

09:45:49 **7** Q. And there's no publications in the

09:45:53 **8** peer-reviewed literature regarding testing for

09:45:57 **9** talc -- testing talc; right?

09:46:00 **10** MS. O'DELL: Object to the form. Object

09:46:01 **11** to the form.

09:46:02 **12** THE WITNESS: Your question again, I'm

09:46:03 **13** sorry?

09:46:03 **14** Q. (By Mr. Chachkes) You don't have any

09:46:04 **15** peer-reviewed publications regarding the testing of

09:46:06 **16** talc; right?

09:46:07 **17** A. **I don't, no.**

09:46:07 **18** Q. What about peer-reviewed publications

09:46:12 **19** regarding the testing of talc in ovarian tissue?

09:46:14 **20** MS. O'DELL: Object to the form. Are you

09:46:15 **21** talking about his publications or in --

09:46:18 **22** MR. CHACHKES: Of course, yes.

09:46:20 **23** MS. O'DELL: It's not clear on the

**24** question.

**25** THE WITNESS: Yeah.

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09:46:20 **1** MS. O'DELL: So would you ask the question

09:46:21 **2** again, please.

09:46:21 **3** Q. (By Mr. Chachkes) Do you have any

09:46:23 **4** publications in the peer-reviewed literature about

09:46:23 **5** testing ovarian tissue for talc?

09:46:26 **6** A. **No.**

09:46:27 **7** Q. **Do you have any publications in the**

09:46:30 **8** **peer-reviewed literature about testing ovarian tissue**

09:46:35 **9** **for asbestos?**

09:46:35 **10** A. **No.**

09:46:38 **11** Q. Do you have any publications -- actually,

09:46:45 **12** skip that.

09:46:49 **13** Have you been a coauthor on all of

09:46:51 **14** Dr. Longo's reports testing Johnson & Johnson talcum

09:46:58 **15** powder products?

09:46:58 **16** A. **The answer to that is I don't know. A**

09:47:04 **17** **number of them, yes.**

09:47:05 **18** Q. Okay. Are you aware of any report by

09:47:08 **19** Dr. Longo where he issued an expert report in

09:47:11 **20** litigation about testing Johnson Baby Powder and

09:47:15 **21** didn't have you as a coauthor?

09:47:17 **22** A. **I don't recall as I sit here.**

09:47:19 **23** Q. 2017, what percentage of your time did you

09:47:24 **24** spend working on talc-related litigation projects?

09:47:27 **25** A. **I always get that question. I have no**

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09:47:30 **1** **idea. I don't keep track of it.**

09:47:32 **2** Q. Over 50 percent?

09:47:34 **3** A. **Again, I don't know.**

09:47:35 **4** Q. It could be over 50 percent, but you don't

09:47:38 **5** know?

09:47:38 **6** MS. O'DELL: Object to the form.

09:47:39 **7** THE WITNESS: I do not know. It could be

09:47:40 **8** as little as 10 percent. It could be 5 percent.

09:47:43 **9** I don't know.

09:47:44 **10** Q. (By Mr. Chachkes) Could it be 50 percent?

09:47:46 **11** A. **No, I don't think so.**

09:47:47 **12** Q. 2018, what percentage of your time did you

09:47:50 **13** spend working on talc-related litigation projects?

09:47:53 **14** A. **Same answer.**

09:47:54 **15** Q. What's the majority of your time spent on

09:47:58 **16** at MAS?

09:47:58 **17** A. **At the laboratory?**

09:47:59 **18** Q. Just at MAS generally.

09:48:01 **19** A. **Oh, a variety of different things on a**

09:48:03 **20** **daily basis.**

09:48:04 **21** Q. If you had to pick one thing that you

09:48:07 **22** spend most of your time on, what's that?

09:48:09 **23** A. **Most of my time -- I would say most of my**

09:48:18 **24** **time is spent on technological issues surrounding**

09:48:23 **25** **analyses that we do.**

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**40**

09:48:24 **1** Q. Of what?

09:48:25 **2** A. **Of all kinds of materials.**

09:48:27 **3** Q. What material do you spend most of your

09:48:30 **4** time on?

09:48:31 **5** MS. O'DELL: Object to the form.

09:48:32 **6** THE WITNESS: What material did I spend

09:48:33 **7** most of my time on?

09:48:34 **8** Q. (By Mr. Chachkes) Correct.

09:48:35 **9** A. **That would vary by the week.**

09:48:36 **10** Q. Okay.

09:48:37 **11** A. **Yeah.**

09:48:37 **12** Q. There are weeks where it's asbestos;

**13** right?

09:48:40 **14** A. **There can be some that are, yes.**

09:48:42 **15** Q. Okay. What's another material that you

09:48:44 **16** might have spent a majority of your time on that's

09:48:48 **17** not asbestos?

09:48:49 **18** MS. O'DELL: Object to the form.

09:48:50 **19** THE WITNESS: Tissue.

09:48:50 **20** Q. (By Mr. Chachkes) Tissue for looking at

09:48:51 **21** whether it contains asbestos?

09:48:52 **22** A. **In some cases, yes.**

09:48:53 **23** Q. Okay. What are -- I mean, is there a

09:48:57 **24** solid chunk of time, like really a significant chunk

09:49:01 **25** of your time, let's say, over 5 percent of a year

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09:49:04 1 where you're spending doing some scientific work that  
09:49:06 2 has nothing to do with talc or asbestos?  
09:49:09 3 **A. Yes.**  
09:49:09 4 **Q. Okay. What would that be?**  
09:49:11 5 **A. Well, once again, technological issues**  
09:49:17 6 **surrounding things at our laboratory. For instance,**  
09:49:19 7 **as a chief science officer I get all kinds of**  
09:49:22 8 **questions about what we're looking at as far as**  
09:49:27 9 **instrumentation in our laboratory in order to do**  
09:49:30 10 **certain kinds of analyses.**  
09:49:34 11 **We have clients -- potential clients that**  
09:49:38 12 **call in and they want to do an analysis on maybe a**  
09:49:42 13 **drug of some kind, something like that.**  
09:49:44 14 **So it would be up to me working with**  
09:49:47 15 **another scientists there at the laboratory to**  
09:49:50 16 **understand what resources we need to be able to do**  
09:49:52 17 **that kind of test, whether we will do that kind of**  
09:49:55 18 **test.**  
09:49:55 19 **Q. Do you bill for your time working for**  
09:50:01 20 **plaintiffs in talc cases?**  
09:50:03 21 **A. Yes.**  
09:50:03 22 **Q. Do you write down the hours?**  
09:50:05 23 **A. I do keep some of the hours, yes.**  
09:50:08 24 **Q. Okay. You say some? There's some times**  
09:50:12 25 **you work for plaintiffs' lawyers and you don't charge**  
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09:50:14 1 them?  
09:50:15 2 MS. O'DELL: Object to the form.  
09:50:16 3 THE WITNESS: Uh-huh. Yes.  
09:50:17 4 **Q. (By Mr. Chachkes) Why?**  
09:50:18 5 **A. Because it just happens.**  
09:50:19 6 **Q. But for the most part you bill for your**  
09:50:21 7 **time?**  
09:50:21 8 **A. Yes.**  
09:50:21 9 **Q. And --**  
09:50:23 10 **A. I don't bill for it. MAS bills for it.**  
09:50:25 11 **Yes.**  
09:50:26 12 **Q. Can you estimate how much time you spent**  
09:50:29 13 **working on the MDL projects?**  
09:50:30 14 **A. No. I think we already talked about that**  
09:50:34 15 **earlier.**  
09:50:35 16 **Q. Okay.**  
09:50:35 17 **A. Yep.**  
09:50:36 18 **Q. Do you have any estimate as to what**  
09:50:44 19 **percentage of your time recently has been for**  
09:50:46 20 **litigation-related projects as opposed to**  
09:50:49 21 **nonlitigation-related projects?**  
09:50:51 22 **A. No.**  
09:50:51 23 **Q. Could it be 50 percent?**  
09:50:53 24 MS. O'DELL: Objection.  
09:50:54 25 THE WITNESS: I have no idea.  
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09:50:55 1 **Q. (By Mr. Chachkes) Okay. You testified in**  
09:51:00 2 **your first talc case in the Ingham matter in Missouri**  
09:51:03 3 **last year?**  
09:51:04 4 **A. Yes.**  
09:51:05 5 **Q. You testified regarding your tissue**  
09:51:07 6 **analysis?**  
09:51:07 7 **A. Yes.**  
09:51:08 8 **Q. And you testified at trial about**  
09:51:09 9 **extrapolating asbestos content from TEM testing;**  
09:51:14 10 **correct?**  
09:51:14 11 **A. Yes.**  
09:51:14 12 **Q. Do you know how much money MAS has made in**  
09:51:19 13 **asbestos litigation over the years?**  
09:51:20 14 **A. I have no idea.**  
09:51:21 15 **Q. Do you know how much money MAS has made**  
09:51:24 16 **over -- for talc litigation over the years?**  
09:51:26 17 **A. No.**  
09:51:26 18 **Q. You have no involvement in that aspect**  
09:51:29 19 **of --**  
09:51:29 20 **A. I wouldn't know.**  
09:51:33 21 **Q. To your knowledge, did MAS ever test**  
09:51:37 22 **cosmetic talcum powder for asbestos before being**  
09:51:40 23 **engaged by plaintiffs' lawyers for that kind of work?**  
09:51:43 24 MS. O'DELL: Object to the form.  
09:51:44 25 THE WITNESS: The answer to that question  
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09:51:45 1 is probably.  
09:51:47 2 **Q. (By Mr. Chachkes) Why do you say**  
09:51:48 3 **probably?**  
09:51:48 4 **A. Because of the work that has been done**  
09:51:54 5 **over the years. We did quite a bit of testing in the**  
09:51:58 6 **past, I believe, on talc that was used in industrial**  
09:52:09 7 **applications; but also the suppliers use the same**  
09:52:13 8 **kind of talc in, for instance, cosmetics and drug**  
09:52:19 9 **applications.**  
09:52:19 10 **Q. So it's your testimony that talc**  
09:52:22 11 **manufacturers use the same exact talc for industrial**  
09:52:26 12 **purposes and cosmetic purposes?**  
09:52:27 13 **A. No, that's not my testimony.**  
09:52:29 14 MS. O'DELL: Object to form.  
09:52:30 15 **Q. (By Mr. Chachkes) Did MAS ever -- I'm**  
09:52:30 16 **going to focus on the word cosmetic here.**  
09:52:32 17 **A. Okay.**  
09:52:33 18 **Q. Did MAS ever test cosmetic talcum powder**  
09:52:37 19 **for asbestos prior to being engaged to do that work**  
09:52:38 20 **for plaintiffs' lawyers?**  
09:52:39 21 MS. O'DELL: Object to the form.  
09:52:40 22 THE WITNESS: The answer to that again, as  
09:52:43 23 I said before, is probably.  
09:52:45 24 **Q. (By Mr. Chachkes) Okay. So was it J&J**  
09:52:49 25 **cosmetic talcum powder? Colgate cosmetic talcum**  
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09:52:53 1 powder? What cosmetic talcum powder do you think  
09:52:58 2 that was?  
09:52:58 3 **A. I don't know. I do know, again, that a**  
09:53:00 4 **number of different types of talcum powders were**  
09:53:03 5 **tested at MAS prior to this litigation.**  
09:53:04 6 **Q.** Well, you cited some industrial talcum  
09:53:14 7 powder --  
09:53:14 8 **A. Yes. Well, I just used a --**  
09:53:14 9 THE REPORTER: Wait. One at a time.  
09:53:14 10 THE WITNESS: Sorry. Ask the question  
09:53:16 11 again.  
09:53:16 12 **Q.** (By Mr. Chachkes) Okay. You have no  
09:53:18 13 specific memory of testing any cosmetic talcum powder  
09:53:22 14 prior to being engaged by plaintiff lawyers to do  
09:53:27 15 this?  
09:53:27 16 MS. O'DELL: Object to the form.  
09:53:28 17 THE WITNESS: Again, now you've asked the  
09:53:32 18 question differently than before. The answer  
09:53:36 19 again is, as I said, MAS has been involved in  
09:53:40 20 testing talcum powders in the past prior to this  
09:53:44 21 litigation, and some of them most probably were  
09:53:49 22 cosmetic types, too.  
09:53:50 23 **Q.** (By Mr. Chachkes) When you say most  
09:53:52 24 probably, did you have a personal involvement in  
09:53:53 25 those testings?  
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09:53:54 1 **A. Being at the laboratory and seeing samples**  
09:54:01 2 **that have come in and had come in over that period of**  
09:54:05 3 **time, again, the answer to that is probably.**  
09:54:09 4 **Q.** Okay. So but what about personally  
09:54:11 5 involved in the experimentation on talc prior to  
09:54:14 6 being engaged by plaintiff lawyers, were you  
09:54:17 7 personally involved in any such investigations?  
09:54:20 8 **A. The answer to that is probably also.**  
09:54:22 9 **Q.** Okay. So you've run TEM on talcum powder  
09:54:26 10 at MAS prior to being engaged by --  
09:54:29 11 **A. Well, when you say --**  
09:54:31 12 MS. O'DELL: Object to the form.  
09:54:33 13 THE WITNESS: -- personally involved,  
09:54:36 14 again, part of the work that I have done in the  
09:54:39 15 past as a laboratory manager would be to be at  
09:54:41 16 the location where the analyst is analyzing that  
09:54:45 17 talc or that product and looking over their  
09:54:48 18 shoulder and seeing what they're doing. So that  
09:54:50 19 would be the personal involvement right there.  
09:54:58 20 **Q.** (By Mr. Chachkes) Okay. Can you name any  
09:54:58 21 cosmetic talcum powder that MAS looked at prior to  
09:55:00 22 being engaged at -- engaged by plaintiff lawyers to  
09:55:03 23 do that, to look at cosmetic talcum powder?  
09:55:06 24 **A. I can't recall that as I sit here.**  
09:55:08 25 **Q.** Okay. Do you believe MAS is the best lab  
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09:55:12 1 in the world to analyze talc for asbestos?  
09:55:15 2 MS. O'DELL: Object to the form.  
09:55:16 3 THE WITNESS: I like the way you put that.  
09:55:19 4 Do like that.  
09:55:22 5 I would say that, yes, we're one of the  
09:55:26 6 best in the world, yes.  
09:55:26 7 **Q.** (By Mr. Chachkes) Can you name some  
09:55:28 8 others that are in your league?  
09:55:30 9 MS. O'DELL: Object to the form.  
09:55:31 10 THE WITNESS: Well, that again calls for a  
09:55:35 11 judgment on these other laboratories. So, you  
09:55:42 12 know, I respect the other laboratories that are  
09:55:44 13 doing this work. But as far as best in the  
09:55:48 14 world, I would put MAS right there.  
09:55:50 15 **Q.** (By Mr. Chachkes) Okay. The question was  
09:55:51 16 what other laboratories are up there?  
09:55:53 17 **A. I think Jim Millette's lab was -- is**  
09:56:00 18 **definitely up there.**  
09:56:02 19 **Q.** What about McCrone?  
09:56:03 20 **A. Yes.**  
09:56:04 21 **Q.** Are there academic laboratories that can  
09:56:09 22 analyze for asbestos in talc at the level you do?  
09:56:13 23 **A. Academic laboratories?**  
09:56:14 24 **Q.** Yes.  
09:56:15 25 **A. With the quality control we have? I can't**  
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09:56:20 1 **think of any.**  
09:56:21 2 **Q.** Okay. You do better analysis of  
09:56:23 3 asbestos -- of talc for asbestos than academic  
09:56:26 4 laboratories that focus on mineralogy exclusively?  
09:56:29 5 MS. O'DELL: Object to the form.  
09:56:30 6 THE WITNESS: When it comes to quality  
09:56:32 7 control, yes.  
09:56:32 8 **Q.** (By Mr. Chachkes) What about in terms of  
09:56:35 9 accurate results?  
09:56:36 10 **A. Same. Same answer.**  
09:56:37 11 **Q.** Are MAS's analyses of talc for asbestos  
09:56:44 12 reproducible by other labs?  
09:56:48 13 MS. O'DELL: Object to the form.  
09:56:49 14 THE WITNESS: Again, I don't know how to  
09:56:50 15 answer that. But they should be if they use the  
09:56:54 16 same technologies and techniques.  
09:56:57 17 **Q.** (By Mr. Chachkes) Even though their  
09:56:58 18 quality controls aren't up to your standards?  
09:57:01 19 MS. O'DELL: Object to the form.  
09:57:02 20 THE WITNESS: Oh, well, in that case the  
09:57:03 21 answer is I couldn't tell you.  
09:57:04 22 **Q.** (By Mr. Chachkes) Okay. So there's no  
09:57:05 23 lab you can cite right now -- academic, professional,  
09:57:09 24 industrial, or otherwise -- that can reproduce your  
09:57:13 25 results with the same accuracy?  
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09:57:14 1 MS. O'DELL: Object to the form. That's  
09:57:15 2 not his question.  
09:57:17 3 Q. (By Mr. Chachkes) It's a question.  
09:57:18 4 A. **Ask it a different way.**  
09:57:20 5 Q. No.  
09:57:21 6 Can you reread the question, please.  
09:57:31 7 (The record was read by the reporter.)  
09:57:32 8 MS. O'DELL: Object to the form.  
09:57:33 9 THE WITNESS: Well, if they -- again, if  
09:57:34 10 they use the same techniques, they should be  
09:57:38 11 able to, sure.  
09:57:39 12 Q. (By Mr. Chachkes) Okay. So anyone  
09:57:46 13 following the ISO 22262 protocol should be able to  
09:57:50 14 reproduce your results?  
09:57:51 15 MS. O'DELL: Object to the form.  
09:57:53 16 THE WITNESS: If they're following the  
09:57:54 17 protocol, it's most likely that they could, yes.  
09:57:56 18 Q. (By Mr. Chachkes) Okay. Has MAS received  
09:58:01 19 any accolades from any academic institutions for its  
09:58:07 20 testing of talc?  
09:58:07 21 A. **Academic institutions?**  
09:58:09 22 Q. Yes.  
09:58:09 23 A. **I have no idea.**  
09:58:11 24 Q. Has any renowned -- nationally or  
09:58:15 25 internationally renowned TEM scientist identified MAS  
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50  
09:58:19 1 as one of the best labs in the world for testing  
09:58:22 2 talc?  
09:58:23 3 MS. O'DELL: Object to the form.  
09:58:24 4 THE WITNESS: Well, I think if you want to  
09:58:25 5 talk about good laboratories in that kind of  
09:58:27 6 testing, you would definitely look to NIST NVLAP  
09:58:33 7 as the national standard for TEM laboratories  
09:58:36 8 and testing. So, you know, they would -- you  
09:58:44 9 know, based on their assessments, their audits  
09:58:47 10 of our laboratory, then I would say yes.  
09:58:49 11 Q. (By Mr. Chachkes) Okay. So NIST and  
09:58:51 12 NVLAP have told MAS that you're one of the best labs  
09:58:55 13 in the world for testing talc?  
09:58:57 14 MS. O'DELL: Object to the form.  
09:58:58 15 THE WITNESS: No, they don't say things  
09:58:59 16 like that.  
09:58:59 17 Q. (By Mr. Chachkes) Okay. They just  
09:59:00 18 accredit you?  
09:59:00 19 A. **Yeah, of course. Yeah.**  
09:59:02 20 Q. They didn't give you some super  
09:59:04 21 accreditation that only you get or you're above and  
09:59:07 22 beyond other laboratories; correct?  
09:59:08 23 A. **No --**  
09:59:08 24 MS. O'DELL: Object to the form.  
09:59:10 25 THE WITNESS: -- there's no such thing.  
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09:59:11 1 Q. (By Mr. Chachkes) All right. So let me  
2 ask the same question again.  
09:59:11 3 Are there any nationally or  
09:59:13 4 internationally renowned TEM scientists that have  
09:59:14 5 identified MAS as one of the best labs in the world  
09:59:17 6 for testing talc?  
09:59:18 7 MS. O'DELL: Object to the form.  
09:59:19 8 THE WITNESS: Well, let me answer it.  
09:59:20 9 There haven't been any that haven't said we're  
09:59:23 10 not the best either, okay?  
09:59:25 11 Q. (By Mr. Chachkes) Have any nationally or  
09:59:28 12 internationally renowned PLM scientists identified  
09:59:31 13 MAS as one of the best labs -- strike that.  
09:59:35 14 Have you ever presented at any conferences  
09:59:37 15 about testing talc with TEM?  
09:59:40 16 A. **No.**  
09:59:40 17 Q. Have you ever presented any conferences  
09:59:42 18 about testing talc with PLM?  
09:59:44 19 A. **No.**  
09:59:44 20 Q. Have you ever presented -- have you ever  
09:59:50 21 been invited to any conferences on the subject matter  
09:59:53 22 of testing talc?  
09:59:55 23 A. **I can't recall any invitations.**  
09:59:57 24 Q. When did you personally first learn about  
10:00:01 25 the ISO 22262-2 TEM method?  
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52  
10:00:05 1 A. **Oh, I don't know, a couple of years ago.**  
10:00:08 2 Q. From whom did you learn it?  
10:00:09 3 A. **I can't recall.**  
10:00:14 4 Q. When was the first time that anyone at MAS  
10:00:21 5 tested a talc sample using the ISO 22262 method?  
10:00:25 6 A. **It probably was a couple of years ago, I**  
10:00:28 7 **would think.**  
10:00:29 8 Q. Sometime in 2017?  
10:00:30 9 MS. O'DELL: Object to form.  
10:00:31 10 THE WITNESS: Again, I don't know an exact  
10:00:32 11 date for that.  
10:00:33 12 Q. (By Mr. Chachkes) Could it have been in  
10:00:34 13 2016?  
10:00:34 14 A. **I don't know. We have been using it for**  
10:00:36 15 **quite a while. So as far as the exact date, I don't**  
10:00:40 16 **know.**  
10:00:40 17 Q. Could it have be in 2015?  
10:00:42 18 MS. O'DELL: Object to the form.  
10:00:43 19 THE WITNESS: I don't know.  
10:00:44 20 Q. (By Mr. Chachkes) You're the lab manager;  
10:00:46 21 right? You were --  
10:00:46 22 A. **I was for a time, yes.**  
10:00:47 23 Q. Okay. Would you be aware of any ISO 22262  
10:00:52 24 test of talc in your laboratory?  
10:00:56 25 A. **Yes.**  
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10:00:56 **1 Q.** Could the first test have been in 2018?

10:01:00 **2 A.** **Again, I don't know. It's been at least,**

10:01:04 **3 I don't know, two or three years at least.**

10:01:06 **4 Q.** Okay. Did your analyst use ISO 22262 on

10:01:13 **5** any talc samples prior to the testing reported on in

10:01:16 **6** this report?

10:01:17 **7** MS. O'DELL: Object to the form.

10:01:18 **8** THE WITNESS: I don't know.

10:01:19 **9 Q.** (By Mr. Chachkes) Your report includes

10:01:27 **10** EDXA spectra for several particles; correct?

10:01:29 **11 A.** **The reports do, yes.**

10:01:30 **12 Q.** Yeah. What is EDXA?

10:01:35 **13 A.** **Energy dispersive spectroscopy -- x-ray**

10:01:38 **14 energy dispersive spectroscopy.**

10:01:38 **15 Q.** Can you identify a particle of asbestos

10:01:39 **16** using EDXA alone?

10:01:42 **17 A.** **You mean a fiber, that type of thing, a**

10:01:45 **18 bundle, fiber bundle? You're just saying particle,**

10:01:45 **19 so --**

10:01:50 **20 Q.** Okay.

10:01:50 **21 A.** **Yeah, I'm just trying to be specific.**

10:01:52 **22 Q.** So was the answer different to my question

10:01:54 **23** whether I used the word particle or a fiber or

10:01:56 **24** bundle?

10:01:57 **25 A.** **No.**

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10:02:00 **1 Q.** Okay. So let me ask again.

10:02:00 **2 A.** **Okay.**

10:02:02 **3 Q.** Can you identify a particle of asbestos by

10:02:04 **4** EDXA alone?

10:02:06 **5 A.** **Yes. Well, no, not by just EDXA, no.**

10:02:10 **6 Q.** Okay. Why not?

10:02:11 **7 A.** **Well, they have the chemistry, and they**

10:02:14 **8 would be similar to the chemistry of another type of**

10:02:17 **9 fiber too.**

10:02:18 **10 Q.** **Can you distinguish anthophyllite from**

10:02:21 **11 talc using EDXA alone?**

10:02:24 **12 A.** **No. You need other methodologies, and**

10:02:29 **13 that's what we use. We use a suite of methodologies.**

10:02:32 **14 Q.** **Can you distinguish anthophyllite from**

10:02:39 **15 cummingtonite with EDXA alone?**

10:02:41 **16 A.** **The answer to that is no.**

10:02:43 **17 Q.** So for the EDXA process, walk me through

10:02:50 **18** the steps. What do you do?

10:02:52 **19 A.** **Where do you want to start on that?**

10:02:55 **20 Q.** Well, you've got a particle?

10:02:56 **21 A.** **Okay.**

10:02:57 **22 Q.** You've decided I want to do EDXA on that?

10:03:01 **23 A.** **Right.**

10:03:01 **24 Q.** What do you do next?

10:03:02 **25 A.** **Well, essentially what the analyst does is**

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10:03:04 **1 they will set the microscope up for the EDX process,**

10:03:10 **2 and that involves setting some lenses and condensers**

10:03:14 **3 in there so that you can focus the beam on the**

10:03:17 **4 particle.**

10:03:17 **5 Then the beam is focused. The**

10:03:20 **6 spectrometer is put into place in the microscope.**

10:03:24 **7 Then you, of course, begin the process of collecting**

10:03:29 **8 x-rays from the specimen.**

10:03:31 **9 Q.** And then you get an EDXA spectrum?

10:03:35 **10 A.** **Yes.**

10:03:36 **11 Q.** Let's look at an example spectrum so you

10:03:39 **12** could tell me about it. There's probably one that's

10:03:42 **13** already been marked.

10:03:52 **14** I'm going to present to you with what was

10:03:54 **15** marked yesterday as Longo Number 12. Do you see

10:03:57 **16** that?

10:03:57 **17 A.** **Yes.**

10:03:58 **18 Q.** And that's an EDXA spectra from your

10:04:03 **19** expert report; correct?

10:04:05 **20** MS. O'DELL: Object to the form.

10:04:07 **21** THE WITNESS: If it's from our report,

10:04:09 **22** yes.

10:04:09 **23 Q.** (By Mr. Chachkes) Okay. It is from your

10:04:11 **24** report. So is that what an EDXA spectra looks like?

10:04:20 **25 A.** **Yes.**

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10:04:21 **1 Q.** And you'll notice on the bottom left-hand

10:04:26 **2** corner it says elements and it has got some elements

10:04:28 **3** and it says total?

10:04:29 **4 A.** **Yes.**

10:04:29 **5 Q.** **Your software can generate information**

10:04:31 **6 that fills in that; correct?**

10:04:32 **7 A.** **Yes.**

10:04:33 **8 Q.** Why don't you turn that -- why don't you

10:04:35 **9** use it, that software?

10:04:36 **10 A.** **We do.**

10:04:38 **11 Q.** Okay. Why in these experiments did you

10:04:41 **12** not put in the information that can be generated on

10:04:45 **13** the bottom left-hand side of Exhibit 12?

10:04:48 **14** MS. O'DELL: Object to the form.

10:04:49 **15** THE WITNESS: Well, there could be any

10:04:50 **16** number of reasons for that. Typically, when

10:04:54 **17** we're looking at these types of particles, they

10:04:58 **18** have characteristic spectra for the -- if it's a

10:05:02 **19** particular asbestos type.

10:05:03 **20** For instance, this is tremolite. You can

10:05:07 **21** turn the -- the data's there, so you can turn

10:05:12 **22** that data on to show you what the oxides are for

10:05:15 **23** the oxides.

10:05:16 **24 Q.** (By Mr. Chachkes) Is it a coincidence

10:05:19 **25** that the data was not turned on for any of these, or

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10:05:22 **1** were the analysts actually instructed not to turn it  
 10:05:25 **2** on?  
 10:05:25 **3** **A. No, it's not a coincidence.**  
 10:05:27 **4** **Q.** Okay. They were instructed to not  
 10:05:28 **5** generate that data?  
 10:05:29 **6** **A. No. No, no, no. No.**  
 10:05:31 **7** **Q.** Now, is it standard operating practice not  
 10:05:36 **8** to generate that data?  
 10:05:37 **9** **A. Is it standard operating practice --**  
 10:05:39 **10** **Q.** -- at MAS not to generate that data?  
 10:05:41 **11** **A. They don't have to generate it. It's not**  
 10:05:43 **12 required.**  
**13** **Q.** Okay.  
 10:05:43 **14** **A. It's not required by the method.**  
 10:05:45 **15** **Q.** Is that data in the software, you just  
 10:05:51 **16** choose not to print it out?  
 10:05:53 **17** **MS. O'DELL:** Object to the form.  
 10:05:54 **18** **THE WITNESS:** I would have to check on  
 10:05:55 **19** that to see. So that's my answer to that right  
 10:05:59 **20** now.  
 10:05:59 **21** **Q.** (By Mr. Chachkes) Okay.  
 10:06:00 **22** **A. Yeah.**  
 10:06:00 **23** **Q.** And is that data -- you wouldn't  
 10:06:04 **24** deliberately delete that data; right?  
 10:06:06 **25** **A. No, never.**  
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10:06:07 **1** **Q.** Is that data still at MAS, that if I asked  
 10:06:10 **2** you to redo these with the data printed out, could  
 10:06:12 **3** you do it?  
 10:06:13 **4** **A. I don't know. We would have to ask Bill**  
 10:06:16 **5 to see if it, in fact, is. It depends on the**  
 10:06:21 **6 software.**  
 10:06:23 **7** **Q.** Okay.  
 10:06:23 **8** **A. Yeah.**  
 10:06:24 **9** **MR. CHACHKES:** We would request that data  
 10:06:25 **10** be produced. So if -- we'll make a formal  
 10:06:30 **11** request for that.  
 10:06:30 **12** **MS. O'DELL:** I think the data that's  
 10:06:32 **13** available has been produced, it's provided in  
 10:06:34 **14** the report, and so there's no further data.  
 10:06:36 **15** **Q.** (By Mr. Chachkes) We'll --  
 10:06:37 **16** **A. Well, this is adequate to tell if this is**  
 10:06:39 **17 a characteristic spectrum of tremolite, but you can't**  
 10:06:44 **18 say, well, we know this is tremolite. We have other**  
 10:06:46 **19 methods that have to be coupled together to be able**  
 10:06:48 **20 to, you know, 99.9 percent say it is.**  
 10:06:52 **21** **Q.** I'm just talking about the data down  
 10:06:53 **22** there.  
 10:06:54 **23** **A. Okay.**  
 10:06:54 **24** **Q.** Let's look at what was marked yesterday as  
 10:06:56 **25** Exhibit 13. If you could look at like the last page.  
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10:07:08 **1** Maybe just flip it up to the last page.  
**2** **A. Okay.**  
 10:07:10 **3** **Q.** You see there, it's an EDXA printout.  
 10:07:15 **4** This is not yours.  
**5** **A. Sure.**  
 10:07:15 **6** **Q.** This is from Connecticut.  
 10:07:17 **7** **A. Uh-huh.**  
 10:07:17 **8** **Q.** And you see that -- it looks like it was  
 10:07:18 **9** generated from the same software as yours, it's the  
 10:07:21 **10** same fonts, same format. Is that a reasonable  
 10:07:24 **11** conclusion?  
**12** **A. I don't know --**  
 10:07:25 **13** **MS. O'DELL:** Object to the form.  
 10:07:26 **14** **THE WITNESS:** -- we'd have to see. You  
 10:07:27 **15** know, they're all -- there are a number of  
 10:07:29 **16** different EDS software packages out there.  
 10:07:31 **17** **Q.** (By Mr. Chachkes) Do you know the name of  
 10:07:34 **18** your EDS software package?  
 10:07:36 **19** **A. I want to say it's called Revolutions.**  
 10:07:38 **20** **Q.** Are there different versions of the  
 10:07:40 **21** Revolution software?  
 10:07:42 **22** **A. I don't know.**  
 10:07:43 **23** **Q.** And the information in the lower left, you  
 10:07:44 **24** see that's generated for each of the relevant  
 10:07:48 **25** elements, weight percentage, standard deviation,  
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10:07:55 **1** atomic percentage, oxide percentage, other  
 10:07:56 **2** information; do you see that?  
 10:07:57 **3** **A. Yes.**  
 10:07:58 **4** **Q.** Can you generate all that information if  
 10:08:00 **5** you wanted to for your EDXA?  
 10:08:04 **6** **MS. O'DELL:** Object to the form.  
 10:08:06 **7** **THE WITNESS:** Again, it depends on the way  
 10:08:07 **8** the software operates, if it's set up to be able  
 10:08:11 **9** to collect that information and make those  
 10:08:12 **10** statistics.  
 10:08:12 **11** **Q.** (By Mr. Chachkes) For the EDXA  
 10:08:15 **12** experiments that you ran for the purposes of the MDL  
 10:08:18 **13** report, would you be able to generate that  
 10:08:21 **14** information or you just don't know?  
 10:08:23 **15** **MS. O'DELL:** Object to form.  
 10:08:24 **16** **THE WITNESS:** I don't know.  
 10:08:24 **17** **Q.** (By Mr. Chachkes) Okay. Do you  
 10:08:27 **18** understand that that information, some people find  
 10:08:30 **19** that useful?  
 10:08:31 **20** **MS. O'DELL:** Objection.  
 10:08:31 **21** **THE WITNESS:** It can be, yeah.  
 10:08:33 **22** **Q.** (By Mr. Chachkes) Why?  
 10:08:33 **23** **A. Well, it can be useful in -- for instance,**  
 10:08:37 **24 if you're a research geologist and you're trying to**  
 10:08:41 **25 determine the composition and the makeup of an**  
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10:08:43 **1 unknown, that would be very helpful.**  
 10:08:44 **2 Q. Okay. Why is it very helpful?**  
 10:08:46 **3 A. Again, if they are -- if they're trying to**  
 10:08:49 **4 understand the composition of these materials, then**  
 10:08:52 **5 that information is part of info to try to figure out**  
 10:09:00 **6 what you're working with.**  
 10:09:01 **7 Q.** That information that we're talking about  
 10:09:05 **8** a researcher can use to estimate the composition, the  
 10:09:11 **9** chemical composition, of the subject particle; right?  
 10:09:14 **10** MS. O'DELL: Object to form.  
 10:09:14 **11** THE WITNESS: Yeah, they can estimate it.  
 10:09:15 **12** They can estimate it.  
 10:09:16 **13** MS. O'DELL: Dr. Rigler, give me just a  
 10:09:19 **14** second before you answer.  
 10:09:20 **15** THE WITNESS: Sure. Sorry.  
 10:09:20 **16** MS. O'DELL: Thank you.  
 10:09:20 **17 Q.** (By Mr. Chachkes) And one of the ways you  
 10:09:23 **18** do that is by -- you take the ratios of the peak  
 10:09:29 **19** areas of the metals to the silicon; right?  
 10:09:32 **20 A. That's one way to do it.**  
 10:09:33 **21 Q.** And if you were going to generate peak  
 10:09:40 **22** areas for your EDXA you could do that; right?  
 10:09:43 **23 A. Yeah. I would say yes to that. Again, I**  
 10:09:46 **24 would have to look at the package to see what's in**  
 10:09:49 **25 there.**  
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10:09:49 **1 Q.** It's pretty fundamental. I would think  
 10:09:51 **2** all packages have that; right?  
 10:09:53 **3** MS. O'DELL: Object to the form.  
 10:09:54 **4** THE WITNESS: Yes, but they vary in the  
 10:09:55 **5** software, the way that the company has put the  
 10:09:59 **6** software together.  
 10:10:00 **7 Q.** (By Mr. Chachkes) Okay. So this process  
 10:10:02 **8** of comparing ratios of metals to silicon, are you  
 10:10:06 **9** comparing peak areas or just simply peak heights?  
 10:10:09 **10 A. Again, that varies. In a lot of cases**  
 10:10:13 **11 it's peak heights if you're working with -- depending**  
 10:10:17 **12 on what your methodology is.**  
 10:10:18 **13 For instance, I believe one of the**  
 10:10:21 **14 standard methodologies for asbestos analysis is in**  
 10:10:24 **15 the AHERA regulations, and I believe there they use**  
 10:10:30 **16 peak ratios in that, which I believe are based on**  
 10:10:33 **17 peak heights.**  
 10:10:34 **18 Q.** Okay. And what about for an unknown  
 10:10:40 **19** chemical or crystal, what's more useful to determine  
 10:10:46 **20** the chemical composition, peak heights or peak areas?  
 10:10:49 **21** MS. O'DELL: Object to the form.  
 10:10:50 **22** THE WITNESS: Either one can be used,  
 10:10:51 **23** depending upon how you're calibrated.  
 10:10:54 **24 Q.** (By Mr. Chachkes) It's your belief that  
 10:10:55 **25** the peer-reviewed literature reflects that either  
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10:10:59 **1** peak heights or peak areas can be used to determine  
 10:11:02 **2** the chemical composition of the subject of an EDXA  
 10:11:04 **3** analysis?  
 10:11:05 **4 A. Well --**  
 10:11:05 **5** MS. O'DELL: Object.  
 10:11:06 **6** THE WITNESS: -- if we step back a minute,  
 10:11:12 **7** these kinds of spectra are not the kinds of  
 10:11:15 **8** spectra that we get when we're doing something  
 10:11:17 **9** like mass spectrometer where we're really  
 10:11:20 **10** looking at an area under a peak. You can do  
 10:11:24 **11** peak heights on those, half width max types of  
 10:11:29 **12** estimates with those.  
 10:11:31 **13** These are spectrometers, and what they do  
 10:11:33 **14** is they collect data in electron channels for  
 10:11:37 **15** electron voltage. So typically what you do is  
 10:11:41 **16** you bombard your specimen with the electron beam  
 10:11:46 **17** for a period of time to get enough counts so  
 10:11:50 **18** that the peaks are stable at a stable height,  
 10:11:54 **19** and then you can compare the peak heights.  
 10:11:57 **20** So peak area, you know, for this kind of a  
 10:12:02 **21** spectrometer, again, you'll get different  
 10:12:04 **22** opinions, but it's not the same type of thing  
 10:12:07 **23** with the mass spectrometer. So peak heights  
 10:12:09 **24** work very well for these.  
 10:12:11 **25 Q.** (By Mr. Chachkes) Okay. It's not a  
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10:12:12 **1** question about what works very well or --  
 10:12:15 **2 A. Well, it is kind of a question about what**  
 10:12:16 **3 works really well.**  
 10:12:17 **4 Q.** Okay. Focus on my question.  
 10:12:18 **5 A. I hear you, but you're kind of going to**  
 10:12:21 **6 it --**  
 10:12:21 **7 Q.** Focus on my question.  
 10:12:23 **8 A. I'm focusing.**  
 10:12:24 **9 Q.** The question is about peer-reviewed  
 10:12:27 **10** literature --  
 10:12:27 **11 A. Let me just finish.**  
 10:12:28 **12** MS. O'DELL: Sorry.  
 10:12:29 **13** THE WITNESS: Let me finish. I'm not  
 10:12:29 **14** finished.  
 10:12:30 **15** MS. O'DELL: Please finish.  
 10:12:33 **16** THE WITNESS: Okay. Peak heights work  
 10:12:34 **17** very well for this type of a spectrometer. Now,  
 10:12:38 **18** we can get in all the minutia of area versus  
 10:12:41 **19** peak height, but we have to know what kind of  
 10:12:44 **20** system that we're talking about.  
 10:12:46 **21 Q.** (By Mr. Chachkes) Same question.  
 10:12:47 **22 A. Okay.**  
 10:12:48 **23 Q.** Focus on what I'm asking, which is about  
 10:12:50 **24** the peer-reviewed literature.  
 10:12:50 **25 A. Okay.**  
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10:12:51 **1** Q. In the peer-reviewed literature where  
10:12:53 **2** folks are looking at EDXA spectra to determine the  
10:12:57 **3** chemical composition of an unknown subject --  
10:13:00 **4** A. Okay.  
10:13:01 **5** Q. -- does the peer-reviewed literature  
10:13:04 **6** support both using peak heights and peak area to make  
10:13:07 **7** that determination?  
10:13:09 **8** MS. O'DELL: Object to the form.  
10:13:10 **9** THE WITNESS: I would have to review the  
10:13:12 **10** literature. Standard methods use peak height.  
10:13:19 **11** Some may use peak area also. So as far as that,  
10:13:22 **12** I would have to go and review it.  
10:13:24 **13** Q. (By Mr. Chachkes) When you say standard  
10:13:25 **14** methods, you mean in the peer-reviewed literature or  
10:13:28 **15** something else?  
10:13:28 **16** A. Sure. It would be -- if it's a standard  
10:13:31 **17** method it's going to be peer-reviewed.  
10:13:33 **18** Q. Okay. Looking at Exhibit 12 again, going  
10:13:40 **19** back to your EDXA printout, did you do a  
10:13:46 **20** comprehensive review of what minerals could  
10:13:50 **21** correspond to this EDXA spectra other than what you  
10:13:55 **22** believe it to be, which is tremolite?  
10:13:57 **23** A. I didn't do a comprehensive review of  
10:13:59 **24** this.  
10:13:59 **25** Q. Did anybody do a comprehensive review of  
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10:14:02 **1** the EDXA spectra to determine what other minerals  
10:14:05 **2** they could correspond to?  
10:14:07 **3** A. A comprehensive review. What do you mean  
10:14:13 **4** by that?  
10:14:13 **5** Q. So, for example, if an expert in  
10:14:16 **6** mineralogy and EDXA mineralogy were to tell you this  
10:14:19 **7** spectra in Exhibit 12 can correspond to dozens if not  
10:14:24 **8** hundreds of other minerals, sitting here today, do  
10:14:26 **9** you have any reason to dispute that?  
10:14:27 **10** MS. O'DELL: Object to the form.  
10:14:29 **11** THE WITNESS: I would say that it could  
10:14:31 **12** correspond to a number of other minerals, yes.  
10:14:34 **13** MR. CHACHKES: Okay.  
10:14:35 **14** MS. O'DELL: Alex, excuse me. We've been  
10:14:38 **15** going about an hour, a little over an hour. Can  
10:14:40 **16** we take a short break, please?  
10:14:41 **17** MR. CHACHKES: Yeah. Let me see if I can  
10:14:43 **18** finish this part.  
10:14:44 **19** MS. O'DELL: Are you ready for a break,  
10:14:46 **20** Doctor?  
10:14:46 **21** THE WITNESS: Sure.  
10:14:48 **22** MR. CHACHKES: That's fine, we'll take a  
10:14:50 **23** break.  
10:14:51 **24** (Recess from 10:14 a.m. to 10:37 a.m.)  
10:38:00 **25** Q. (By Mr. Chachkes) We spoke earlier about  
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10:38:03 **1** you record your time; correct?  
10:38:05 **2** A. As far as recording the time --  
10:38:08 **3** Q. Yes.  
10:38:09 **4** A. Yes, some of it, but not all of it.  
10:38:11 **5** Q. Okay. And who do you give those time  
10:38:13 **6** sheets to?  
10:38:13 **7** A. I don't -- as I say, I go in and speak to  
10:38:20 **8** Bill's assistant and then give her the hours that I  
10:38:25 **9** have.  
10:38:25 **10** Q. Is it your understanding that the other  
10:38:26 **11** people in your laboratory are giving their hours to  
10:38:28 **12** Bill's assistant?  
10:38:29 **13** A. I don't know what they're doing.  
10:38:31 **14** Q. Okay. Have they been instructed to keep  
10:38:33 **15** their time?  
10:38:33 **16** A. You'd have to ask Bill about that.  
10:38:36 **17** Q. Okay. So I'd like to request of  
10:38:37 **18** plaintiffs all invoices billed on behalf of the MDL  
10:38:41 **19** at MAS.  
10:38:46 **20** So let's --  
10:38:48 **21** A. I wanted to -- before we got started, I  
10:38:51 **22** wanted to bring up a point about the publications,  
10:38:52 **23** because I know you were asking about that.  
10:38:54 **24** Q. Okay.  
10:38:54 **25** A. And it is our policy at our laboratory to  
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10:38:58 **1** not discuss any possible publications that we may  
10:39:02 **2** have pending. It's part of our policy, and it's  
10:39:06 **3** actually what we consider as proprietary.  
10:39:13 **4** MR. CHACHKES: I'm going to ask counsel  
10:39:14 **5** again, are you going to allow me to ask a full  
10:39:18 **6** set of questions about what the pending  
10:39:19 **7** publication is?  
10:39:20 **8** MS. O'DELL: No.  
10:39:20 **9** MR. CHACHKES: Okay. We'll raise it with  
10:39:21 **10** the magistrate.  
10:39:21 **11** MS. O'DELL: He's answered your question.  
10:39:23 **12** These are the invoices. It's two copies of one  
10:39:26 **13** invoice, and you're welcome to ask him questions  
10:39:28 **14** about it if you'd like.  
10:39:29 **15** MR. CHACHKES: Okay. And we're also  
10:39:30 **16** requesting all invoices from all people for who  
10:39:35 **17** do bill time, the analysts, Bill, the works.  
10:39:39 **18** MR. PARFITT: We'll take that under  
10:39:39 **19** advisement.  
10:39:39 **20** MS. O'DELL: Your request is noted. There  
10:39:43 **21** will be an objection to that.  
10:39:45 **22** MR. CHACHKES: Okay. Let's just mark --  
10:39:47 **23** let me see if these are different. Yeah.  
10:39:49 **24** MS. O'DELL: Let's see.  
10:39:51 **25** MR. CHACHKES: Yeah, they're different.  
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10:39:51 **1** One is for 9,000 and one is for 14.  
 10:39:54 **2** MS. O'DELL: Oh, yeah.  
 10:39:56 **3** **Q.** (By Mr. Chachkes) By the way, did you  
 10:39:59 **4** bring any documents with you today?  
 10:40:00 **5** **A.** **I did.**  
 10:40:00 **6** **Q.** What documents did you bring with you?  
 10:40:02 **7** **A.** **Let me get them out.**  
 10:40:11 **8** MS. O'DELL: May I see those just a minute  
 10:40:13 **9** to make sure.  
 10:40:19 **10** THE WITNESS: The request.  
 10:40:20 **11** **Q.** (By Mr. Chachkes) You don't have to hand  
 10:40:22 **12** them to me, just tell me what they are.  
 10:40:24 **13** **A.** **Okay. Let's see. This is the notice of**  
 10:40:27 **14** **oral and videotaped deposition.**  
 10:40:28 **15** **Q.** Well, let me just ask this question. Did  
 10:40:29 **16** you bring any documents that I might not already  
 10:40:31 **17** have? So I have your report, I have the subpoena, I  
 10:40:36 **18** have the things lawyers exchange. Is there  
 10:40:40 **19** anything --  
 10:40:40 **20** **A.** **You have the quality report?**  
 10:40:42 **21** **Q.** Yes, we have the quality report; correct?  
 10:40:45 **22** And you brought that?  
 10:40:46 **23** **A.** **I brought a copy of that. There was one**  
 10:40:48 **24** **minor typographical error I found in that.**  
 10:40:50 **25** **Q.** We'll get to that.  
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10:40:52 **1** **A.** **Okay.**  
 10:40:52 **2** **Q.** Anything else you brought that I might not  
 10:40:54 **3** otherwise have?  
 10:40:55 **4** **A.** **You probably have everything. I brought**  
 10:40:59 **5** **the starting weight sheets, the weight sheets that**  
 10:41:04 **6** **we've used for the analysis. I think you guys had**  
 10:41:09 **7** **requested all of that. What else? And the reports.**  
 10:41:11 **8** **The same ones that you have here.**  
 10:41:13 **9** **Q.** So starting weight sheets, have those been  
 10:41:16 **10** produced?  
 10:41:17 **11** **A.** **Yeah, I think they were sent over.**  
 10:41:19 **12** MS. O'DELL: Yes, those were produced. I  
 10:41:21 **13** have one more invoice. I would ask that you not  
 10:41:24 **14** mark this one because I need a clean copy and I  
 10:41:26 **15** don't know why I don't have one in my folder,  
 10:41:29 **16** actually, so I'll get a copy at the break.  
 10:41:31 **17** MR. CHACHKES: Okay. Do you mind if I  
 10:41:32 **18** take a photo of it?  
 10:41:33 **19** MS. O'DELL: No. You're welcome to.  
 10:41:34 **20** MR. CHACHKES: Okay. We will start with  
 10:41:35 **21** that and then we can --  
 10:41:35 **22** MS. O'DELL: Yeah. I'll copy it at the  
**23** break. I just would prefer --  
**24** MR. CHACHKES: Oh, we'll copy it at the  
**25** break. So why don't we do this, why don't we --  
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10:41:38 **1** MS. O'DELL: I just prefer that that not  
 10:41:41 **2** be marked.  
 10:41:42 **3** MR. CHACHKES: Why don't we hold up the  
 10:41:43 **4** invoices until a break. I don't have to ask  
 10:41:45 **5** about them now. We'll do it as a set. I don't  
 10:41:47 **6** want to --  
 10:41:47 **7** MS. O'DELL: Sure.  
 10:41:48 **8** **Q.** (By Mr. Chachkes) Okay. All right. Back  
 10:41:51 **9** to EDXA.  
 10:41:52 **10** **A.** **All right.**  
 10:41:54 **11** **Q.** So -- now, you're aware that crystals have  
 10:42:05 **12** certain characteristic ratios of metals to silicon?  
 10:42:08 **13** **A.** **Yes.**  
 10:42:09 **14** **Q.** Okay. And are you aware that tremolite  
 10:42:11 **15** has a ratio of 5-to-8?  
 10:42:14 **16** **A.** **It can vary.**  
 10:42:16 **17** **Q.** When you say it can vary, what do you mean  
 10:42:19 **18** by that?  
 10:42:19 **19** **A.** **Well, it can vary. I mean, per the**  
 10:42:22 **20** **formula based on how many metal ions that tremolite**  
 10:42:27 **21** **has, it can vary a bit.**  
 10:42:29 **22** **Q.** When you say a bit, what's the margin  
 10:42:32 **23** error there?  
 10:42:33 **24** **A.** **You know, as far as a margin of error,**  
 10:42:36 **25** **peak height ratios, that type of thing, it just**  
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10:42:41 **1** **varies. So, you know, it varies.**  
 10:42:45 **2** **Q.** Do you have any opinion sitting here today  
 10:42:47 **3** as to what the peer-reviewed literature suggests as  
 10:42:51 **4** the acceptable variations when you're looking at an  
 10:42:54 **5** EDXA for determining a mineral from the  
 10:42:58 **6** metal-to-silicon ratio?  
 10:42:59 **7** MS. O'DELL: Object to form.  
 10:43:01 **8** THE WITNESS: I would have to look at the  
 10:43:05 **9** literature to see what they are because I know  
 10:43:08 **10** over the years as I've looked at different  
 10:43:11 **11** references, and I've noticed the slightly  
 10:43:14 **12** different, you know, ratios for the same  
 10:43:17 **13** material.  
 10:43:18 **14** **Q.** (By Mr. Chachkes) Okay. Because the  
 10:43:19 **15** ratio actually should be a certain number because  
 10:43:22 **16** it's based on the chemical formula which is what the  
 10:43:25 **17** definition of the mineral is; correct?  
 10:43:27 **18** **A.** **Well, yes, but by electron spectroscopy**  
 10:43:32 **19** **you can have a variation in the energy depending upon**  
 10:43:36 **20** **takeoff angle and this and that kind of thing,**  
 10:43:39 **21** **depending on the material. So you can have some**  
 10:43:42 **22** **variation there. You know, purely based on the**  
 10:43:44 **23** **formula, again, using a spectrometer, you're going to**  
 10:43:48 **24** **get some variation.**  
 10:43:48 **25** **Q.** Okay. But ideally the ratio is going to  
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10:43:52 **1** be a definite number because it's based on the  
 10:43:57 **2** chemical formula, and the chemical formula for a  
 10:43:58 **3** mineral is set in stone, as it were?  
**4** MS. O'DELL: Object to the form.  
 10:44:02 **5** THE WITNESS: Well, again, now, if you're  
 10:44:03 **6** just talking about the formula, then, yes, you  
 10:44:05 **7** would have ratios based on the formula. You  
 10:44:08 **8** know, forget the EDXA for a minute.  
 10:44:10 **9** But based on the chemical formula and the  
 10:44:12 **10** loading of the ions, you know, in that formula,  
 10:44:15 **11** you're going to have, you know, a set amount  
 10:44:19 **12** there. But when it comes to the actual  
 10:44:21 **13** spectroscopy you're going to have a little bit  
 10:44:23 **14** of variation.  
 10:44:24 **15** Q. (By Mr. Chachkes) Okay. And just by way  
 10:44:25 **16** of example, anthophyllite, the chemical formula, has  
 10:44:29 **17** seven magnesiums, eight silicon; right?  
 10:44:32 **18** A. **Uh-huh.**  
 10:44:33 **19** Q. Is that a yes?  
 10:44:34 **20** A. **Yes.**  
**21** Q. I'm sorry --  
 10:44:38 **22** A. **It's okay.**  
 10:44:38 **23** Q. -- show up on the transcript.  
 10:44:38 **24** And then that ratio of 7-to-8 is the ideal  
 10:44:44 **25** metal-to-silicon ratio under EDXA for anthophyllite?  
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 10:44:48 **1** A. **Well, no, that's for the formula. That**  
 10:44:50 **2** **would be for the formula. Once again, when you get**  
 10:44:53 **3** **to a spectroscopic method, it's going to vary a bit.**  
 10:44:57 **4** Q. So did you -- so in Exhibit 12, do you see  
 10:45:03 **5** how tremolite is written there at the top?  
 10:45:05 **6** A. **Yes.**  
 10:45:05 **7** Q. That's not what the machine generated  
 10:45:07 **8** based on the spectra; you typed that in; correct?  
 10:45:12 **9** A. **The analyst typed that in, yes. But that**  
 10:45:14 **10** **correlates with tremolite, with a tremolite spectrum.**  
 10:45:18 **11** Q. And so do you expect in this Exhibit 12  
 10:45:25 **12** EDXA spectra that the ratio of metal to silicon is  
 10:45:31 **13** going to be 5-to-8 or somewhere in the vicinity of  
 10:45:34 **14** 5-to-8?  
 10:45:35 **15** A. **It could be, yes.**  
 10:45:36 **16** Q. And when you say it could be, would you  
 10:45:42 **17** identify something that has a metal-to-silicon ratio  
 10:45:45 **18** nowhere near 5-to-8 as tremolite under EDXA?  
 10:45:49 **19** MS. O'DELL: Object to the form.  
 10:45:50 **20** THE WITNESS: Can you just restate the  
 10:45:52 **21** question, please?  
 10:45:53 **22** Q. (By Mr. Chachkes) Okay. What margin of  
 10:45:54 **23** error in the metal-to-silicon ratio would be so great  
 10:45:59 **24** that you would say, well, that's not tremolite?  
 10:46:02 **25** A. **Well, again, if, for instance, in this**  
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10:46:07 **1** **spectrum, in Number 12, if the magnesium was up in**  
 10:46:11 **2** **the middle somewhere up high towards the silicon**  
 10:46:14 **3** **peak, you might have a question about it at that**  
 10:46:16 **4** **point. If the calcium peak was down lower, then you**  
 10:46:20 **5** **might have a question about it at that point too.**  
 10:46:22 **6** **So you can get some variation again like**  
 10:46:26 **7** **that, depending upon the mineralogy of tremolite in**  
 10:46:29 **8** **that area. So again, you're going to have a little**  
 10:46:32 **9** **bit of variation. But if it's too far away from**  
 10:46:35 **10** **that, then, yeah, there's a question about that.**  
 10:46:37 **11** Q. Do you have any opinions sitting here  
 10:46:39 **12** today whether the EDXA spectra in 12 is more like  
 10:46:44 **13** another mineral than tremolite?  
 10:46:47 **14** MS. O'DELL: Object to the form.  
 10:46:48 **15** THE WITNESS: Well, I don't have an  
 10:46:50 **16** opinion on that right now.  
 10:46:52 **17** Q. (By Mr. Chachkes) And so did you actually  
 10:46:55 **18** run the metal-to-silicon ratios for your EDXA?  
 10:46:59 **19** MS. O'DELL: Object to the form.  
 10:47:00 **20** THE WITNESS: I didn't run it, no.  
 10:47:02 **21** Q. (By Mr. Chachkes) Okay. Did anybody run  
 10:47:03 **22** it?  
 10:47:03 **23** A. **I don't know. I would have to check.**  
 10:47:04 **24** Q. As the author of the expert report that  
 10:47:09 **25** has these EDXA spectra upon which you're making  
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 10:47:12 **1** conclusions, wouldn't that be important information  
 10:47:14 **2** to know?  
 10:47:14 **3** MS. O'DELL: Object to the form.  
 10:47:21 **4** MS. PARFITT: Objection.  
 10:47:22 **5** THE WITNESS: The information that we have  
 10:47:23 **6** from the spectrometer is accurate, and the peak  
 10:47:29 **7** ratios that you see here are consistent with  
 10:47:34 **8** tremolite. It could be consistent with some  
 10:47:37 **9** other minerals. That's why we do not use EDS;  
 10:47:42 **10** that's why we would do electron diffraction, and  
 10:47:45 **11** we also look at the shape and the form of the  
 10:47:47 **12** material, too. So those things together allow  
 10:47:51 **13** us to say, yeah, this is tremolite.  
 10:47:53 **14** Q. (By Mr. Chachkes) Okay. Do you go into  
 10:47:54 **15** the EDXA -- do you take the EDXA spectra, say, I'm  
 10:48:02 **16** going to assume it's an asbestos and now I'm going to  
 10:48:05 **17** figure out which one? You don't do that, do you?  
 10:48:07 **18** MS. O'DELL: Object to the form.  
 10:48:08 **19** THE WITNESS: Typically what happens is  
 10:48:12 **20** the analyst will take a spectrum, they'll look  
 10:48:17 **21** at the spectrum, then they will flip over -- and  
 10:48:20 **22** they're in the same spot, they'll refigure the  
 10:48:24 **23** scope, and then they will do electron  
 10:48:26 **24** diffraction.  
 10:48:26 **25** They'll look at the diffraction pattern,  
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10:48:28 **1** and then they will make a decision at that  
10:48:29 **2** particular point as to whether it's consistent  
10:48:32 **3** with that form or not. Then they'll index the  
10:48:35 **4** pattern. They'll confirm that with verification  
10:48:38 **5** of the indexing of the pattern.  
10:48:39 **6** **Q.** (By Mr. Chachkes) Okay. So the EDXA --  
10:48:44 **7** so the judgment call by the analyst to what mineral  
10:48:48 **8** they're looking at is based on a combined looking at  
10:48:51 **9** the EDXA spectra and the SAED?  
10:48:56 **10** **A.** **Yes, and also the form. The form.**  
10:49:02 **11** **Q.** And when you say the form, what do you  
10:49:03 **12** mean, the form?  
10:49:04 **13** **A.** **Well, for instance, if it's a round**  
10:49:09 **14** **structure or something that is not fibrous or**  
10:49:12 **15** **crystalline as you would expect tremolite to be,**  
10:49:14 **16** **then, you know, it's a guess as it could be some**  
10:49:17 **17** **other form.**  
10:49:19 **18** **Q.** Can you cite to me any peer-reviewed  
10:49:21 **19** literature or textbook, even, that says taking  
10:49:26 **20** simultaneously the data from an EDXA, SAED, and the  
10:49:32 **21** form is the proper way to identify a mineral?  
10:49:37 **22** MS. O'DELL: Object to the form.  
10:49:38 **23** THE WITNESS: Well, I mean, if you want to  
10:49:39 **24** look at the way EPA said to do it and continues  
10:49:42 **25** to say to do it, you know, in the '70s and the  
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10:49:47 **1** '80s and was published, this is the way to do  
10:49:50 **2** it.  
10:49:50 **3** **Q.** (By Mr. Chachkes) Okay. So you've cited  
10:49:52 **4** the EPA. Anything else, any other published sources?  
10:49:55 **5** **A.** **It's also done -- there are a number**  
10:49:57 **6** **of ASTM -- they are referenced here in our report.**  
10:49:59 **7** **Q.** Okay. Is it your opinion that 22262  
10:50:03 **8** sanctions that methodology?  
10:50:05 **9** **A.** **To my knowledge, yes.**  
10:50:06 **10** **Q.** Okay. And when you say EPA, what document  
10:50:09 **11** are you referring to?  
10:50:10 **12** **A.** **That would be the AHERA document.**  
10:50:15 **13** **CFR 763.**  
10:50:15 **14** **Q.** And so if you're cited CFR -- say it  
10:50:21 **15** again?  
10:50:21 **16** **A.** **763.**  
10:50:22 **17** **Q.** 763?  
10:50:23 **18** **A.** **Yep.**  
10:50:23 **19** **Q.** And then we cited 22262. Any other  
10:50:26 **20** document that supports your methodological approach?  
10:50:29 **21** **A.** **Let me look here. We've referenced them**  
10:50:32 **22** **here. There are a couple of ASTMs too. There's an**  
10:50:36 **23** **ISO document -- well, the ISO is the 22 -- let me see**  
10:50:39 **24** **which ones we've got.**  
10:50:45 **25** **The ASTM D5755-09, D5756, the ISO 10312,**  
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10:51:03 **1** **and there's also ISO 13794. The EPA one's here, it's**  
10:51:12 **2** **40 CFR part 763. They're on page 11 of the report.**  
10:51:19 **3** **Q.** Okay. Any other published literature that  
10:51:21 **4** approves of this method that you're using?  
10:51:23 **5** MS. O'DELL: Object to the form.  
10:51:25 **6** THE WITNESS: Probably there are, but  
10:51:28 **7** these are major standards that are used.  
10:51:32 **8** **Q.** (By Mr. Chachkes) Sitting here today can  
10:51:33 **9** you think of any others?  
10:51:34 **10** **A.** **I'm trying to think of them. As I sit**  
10:51:40 **11** **here, I can't, but I know there are some others.**  
10:51:42 **12** **Q.** Okay.  
10:51:42 **13** **A.** **Yeah.**  
10:51:43 **14** **Q.** Now, let's take, for example, 22262.  
10:51:48 **15** There's a section on EDXA; correct?  
10:51:54 **16** **A.** **To my knowledge there is, yes.**  
10:51:55 **17** **Q.** Right. And there's a section on SAED?  
10:51:58 **18** **A.** **I would have to look at it. I don't have**  
10:52:00 **19** **it right in front me.**  
10:52:01 **20** **Q.** Okay.  
10:52:01 **21** **A.** **If you've got it, I'll look at it. I**  
10:52:03 **22** **don't have it right in front of me.**  
10:52:03 **23** **Q.** Does 22262 expressly say you consider the  
10:52:08 **24** EDXA and SAED together even though that independently  
10:52:12 **25** they may be inconclusive?  
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10:52:13 **1** **A.** **I --**  
10:52:13 **2** MS. O'DELL: Excuse me.  
10:52:15 **3** Dr. Rigler, I've got a copy here that was  
10:52:17 **4** marked, if you need to see 22262-2. I'll  
10:52:20 **5** provide it to you if counsel will not do that.  
10:52:23 **6** THE WITNESS: Okay.  
10:52:23 **7** **Q.** (By Mr. Chachkes) Let me ask this  
10:52:24 **8** question. Are you able to answer the question --  
10:52:26 **9** MS. PARFITT: Give him a chance to look at  
10:52:28 **10** the document.  
10:52:28 **11** MR. CHACHKES: I'm going to ask the  
10:52:30 **12** question. You can --  
10:52:30 **13** MS. PARFITT: No. Give him a chance,  
10:52:30 **14** Alex --  
10:52:30 **15** **Q.** (By Mr. Chachkes) Can you answer --  
10:52:33 **16** MS. PARFITT: Alex, he's not going to  
10:52:34 **17** answer the question.  
10:52:34 **18** **Q.** (By Mr. Chachkes) Can you answer the  
10:52:35 **19** question without being given the document? That's a  
10:52:37 **20** simple question. Can you --  
10:52:37 **21** MS. PARFITT: We need to --  
10:52:38 **22** MR. CHACHKES: Are you going to shut that  
10:52:40 **23** down?  
10:52:40 **24** MS. PARFITT: I'm going to tell him to  
10:52:41 **25** look at the document. The appropriate thing --  
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10:52:43 1 MR. CHACHKES: Okay. Another list for the  
10:52:43 2 magistrate.  
3 Go ahead.  
10:52:45 4 MS. PARFITT: Excuse me. Let's make it  
10:52:46 5 clear. So the question for the magistrate is  
10:52:48 6 when you talk about a document and the witness  
10:52:50 7 wants to see it, you want to bring up to the  
10:52:53 8 magistrate that you aren't going to give it to  
10:52:55 9 him? Is that the subject matter?  
10:52:56 10 MR. CHACHKES: Let's look at the  
10:52:57 11 transcript. Did he say he wanted to see it?  
10:52:58 12 You said he wanted to see it.  
10:52:59 13 MS. PARFITT: Dr. Rigler, would you like  
10:53:02 14 to see the document?  
10:53:02 15 THE WITNESS: Sure.  
10:53:03 16 MS. PARFITT: Thank you.  
10:53:04 17 MR. CHACHKES: All right.  
10:53:05 18 MS. PARFITT: It's amusing, isn't it? Why  
10:53:08 19 don't you act appropriate.  
10:53:09 20 Q. (By Mr. Chachkes) Anyway, is it your  
10:53:10 21 opinion that 22262 says you can take an inconclusive  
10:53:15 22 EDXA and you can take an inconclusive SAED and  
10:53:19 23 together make a determination of what mineral you're  
10:53:22 24 looking at?  
10:53:23 25 MS. O'DELL: Object to the form.  
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10:53:24 1 THE WITNESS: I would have to take a break  
10:53:26 2 to read it and review it, and then I can give  
10:53:28 3 you an answer to that question.  
10:53:29 4 Q. (By Mr. Chachkes) Okay. Sitting here  
10:53:29 5 today, you can't answer that off the top of your  
10:53:32 6 head?  
10:53:32 7 MS. PARFITT: Objection. Misstates his  
10:53:34 8 testimony.  
9 THE WITNESS: That's right.  
10 Q. (By Mr. Chachkes) Okay.  
10:53:34 11 A. **I could give you an answer. I just need**  
10:53:36 12 **some time to review the document.**  
10:53:37 13 Q. Okay. And is it the same answer for the  
10:53:38 14 other standards that you cited? Sitting here today,  
10:53:42 15 could you tell me just off the top of your head  
10:53:44 16 whether those other standards that you cited allow  
10:53:47 17 for someone to take an inconclusive SAED and  
10:53:50 18 inconclusive EDXA together with maybe a visual  
10:53:56 19 morphology decision and judge what mineral you're  
10:53:59 20 looking at?  
10:54:00 21 MS. O'DELL: Object to the form.  
10:54:00 22 THE WITNESS: Well, the answer to the  
10:54:02 23 question is these parts are required to be able  
10:54:09 24 to come up with an answer of what the mineral  
10:54:11 25 is.  
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10:54:11 1 So, yes, you start with an inconclusive;  
10:54:15 2 yes, you start with an inconclusive; yes, you  
10:54:17 3 start with an inconclusive; and you put those  
10:54:19 4 together to come up with a conclusive answer.  
10:54:21 5 Q. (By Mr. Chachkes) Okay.  
10:54:21 6 A. **Yep.**  
10:54:22 7 Q. At a break I would like you to look at  
10:54:26 8 your document --  
10:54:28 9 A. **Okay.**  
10:54:28 10 Q. -- and specifically look for somewhere  
10:54:30 11 where it says you can take three separate and  
10:54:32 12 independent inconclusive analytical results and  
10:54:36 13 combine them to make a conclusive result. Okay?  
10:54:43 14 MS. O'DELL: Object to the form.  
10:54:44 15 THE WITNESS: Well, let me just state that  
10:54:48 16 in science, one of the best ways to come up with  
10:54:51 17 a good answer is use multiple techniques to be  
10:54:54 18 able to make a conclusion. You use one  
10:54:57 19 particular technique, that's good. You use  
10:55:02 20 another technique in conjunction with that,  
10:55:04 21 that's better. Use three techniques in  
10:55:07 22 conjunction with that, that's very good.  
10:55:09 23 So typically this is the way that we work  
10:55:13 24 as scientists. So that's the way that these  
10:55:19 25 documents are written, you know. Again, a good  
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10:55:22 1 example is AHERA as to how they would do that,  
10:55:24 2 they want the scientists to do it.  
10:55:25 3 Q. (By Mr. Chachkes) Will you do me that  
10:55:28 4 favor of during a break look at 22262 and coming up  
10:55:31 5 with your specific opinion as to whether it allows  
10:55:34 6 for someone to take an inconclusive -- three  
10:55:37 7 inconclusive results, combine them for a conclusive  
10:55:39 8 result?  
10:55:39 9 MS. O'DELL: Object to the form.  
10:55:40 10 And you're not required to do any homework  
10:55:42 11 for counsel during a break.  
10:55:45 12 Q. (By Mr. Chachkes) Okay. So you will not  
10:55:48 13 during a break do that; correct?  
10:55:49 14 MS. PARFITT: You want him to do it right  
10:55:51 15 now? It's on your time.  
10:55:53 16 MR. CHACHKES: It's a question for the  
10:55:54 17 witness.  
10:55:54 18 MS. PARFITT: The question for the witness  
10:55:56 19 is -- you were asking him to do homework off the  
10:55:59 20 record on his break; am I correct? Is that what  
10:56:01 21 you're asking him?  
10:56:02 22 MR. CHACHKES: He has a --  
10:56:02 23 MS. PARFITT: Let me ask you a question.  
10:56:03 24 MR. CHACHKES: If you're just going to  
10:56:04 25 talk over me, there's no conversation here.  
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10:56:05 1 MS. PARFITT: You know, Alex, you have a  
10:56:07 2 difficult time talking over people as well, so  
3 I'm not trying to --  
10:56:10 4 MR. CHACHKES: I'll let you finish. Go  
5 ahead.  
6 MS. PARFITT: Thank you. I appreciate  
10:56:13 7 that. It's very kind of you.  
10:56:13 8 Are you asking him to do a project for you  
10:56:16 9 on his break; is that what you're asking him?  
10:56:18 10 MR. CHACHKES: He has come here as an  
10:56:20 11 expert on the subject matter of how one  
10:56:21 12 determines whether there's asbestos in talc, and  
10:56:23 13 he has testified that there are various  
10:56:24 14 standards by which they sanction his  
10:56:27 15 methodology. I want a specific opinion as to  
10:56:30 16 how indeed that happens.  
10:56:32 17 So he should be able to do that. He  
10:56:34 18 should have come prepared for that. So I want  
10:56:35 19 him to read the document and come back with  
10:56:38 20 specifics. That's what I want.  
10:56:39 21 MS. PARFITT: Well, I think there may be a  
10:56:41 22 miscommunication. I don't think he's telling  
10:56:43 23 you he can't do it. The difference is if you  
10:56:46 24 want to ask him that question, he goes through  
10:56:48 25 it right now while we're on the record, that's  
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10:56:51 1 fine.  
10:56:51 2 MR. CHACHKES: I'll tell you what we'll  
10:56:53 3 do. I plan to finish without exhausting my  
10:56:56 4 seven-hour time. If it takes a few hours to go  
10:57:00 5 through documents, we'll do that at the end,  
6 okay?  
7 MS. PARFITT: Go through --  
8 THE WITNESS: Well, I think --  
10:57:02 9 MR. CHACHKES: He can do it on the record.  
10:57:02 10 He can just sit there reading the documents on  
10:57:04 11 the record. We'll stay here until 9:00 if  
10:57:06 12 that's what's required.  
10:57:08 13 MS. PARFITT: That's fine.  
10:57:11 14 MR. CHACHKES: Okay. I mean, right now I  
10:57:13 15 understand the dispute to be not whether he can  
10:57:17 16 go through the documents and give me the answer.  
10:57:18 17 You just want it on the record.  
10:57:19 18 MS. PARFITT: What I would like to have on  
10:57:20 19 the record is your question and his response and  
10:57:22 20 he will tell you -- since I'm not testifying --  
10:57:24 21 he will tell you whether he can respond in kind  
10:57:27 22 to your question and in an appropriate manner.  
10:57:30 23 If the appropriate manner for him to respond to  
10:57:33 24 your question requires him to look at something,  
10:57:36 25 then he's entitled to do it.  
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10:57:36 1 MR. CHACHKES: And I would appreciate in  
10:57:37 2 the future when I ask those questions you don't  
3 tell the witness how the appropriate manner is,  
10:57:39 4 that he is allowed to finish answering the  
10:57:40 5 questions.  
10:57:41 6 MS. PARFITT: Well, let's not trip a  
10:57:43 7 witness. I think let's have a very honest  
10:57:45 8 discussion with the witness, all right?  
10:57:46 9 So that's what we're trying to do is have  
10:57:49 10 an honest discussion with the witness, and I see  
10:57:55 11 you're trying to do that.  
10:57:55 12 Q. (By Mr. Chachkes) Okay. So you said the  
10:57:58 13 analyst is simultaneously doing an EDXA and an SAED;  
14 correct?  
10:58:03 15 A. **They can.**  
10:58:03 16 Q. They can.  
10:58:04 17 A. **Well, I mean, simultaneously -- you have**  
10:58:06 18 **to do one at a time, but you can do them essentially**  
10:58:11 19 **in the same sitting.**  
10:58:12 20 Q. Would the analyst -- would it be  
10:58:15 21 appropriate for an analyst to take something like  
10:58:18 22 Exhibit 12 without having done the SAED yet, without  
10:58:20 23 having done visual morphology yet, to make a  
10:58:23 24 conclusion about what mineral they're looking at?  
10:58:26 25 A. **Well, that's not the way we do it.**  
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10:58:30 1 Q. Would it be appropriate to do it that way?  
10:58:32 2 A. **I'm telling you that's the way we do it.**  
10:58:33 3 Q. The question is as an expert in the area,  
10:58:35 4 is it appropriate to do it? If they did it, would it  
10:58:37 5 be inappropriate?  
10:58:38 6 A. **They could do it.**  
10:58:39 7 MS. O'DELL: Object to the form.  
10:58:40 8 THE WITNESS: They could do it if they  
10:58:41 9 wanted to, but that's not the way we do it.  
10:58:43 10 Q. (By Mr. Chachkes) Okay. And it wouldn't  
10:58:44 11 be inappropriate -- when I say inappropriate, bad  
10:58:47 12 science?  
10:58:48 13 MS. O'DELL: Object to the form.  
10:58:49 14 THE WITNESS: Bad science? I don't know  
10:58:51 15 what you mean by that.  
10:58:52 16 Q. (By Mr. Chachkes) Okay. So something  
10:58:55 17 that would not give you within a reasonable degree of  
10:59:00 18 scientific certainty the conclusion that, ah, this is  
10:59:01 19 the mineral I'm looking at?  
10:59:02 20 A. **Well, they would want to do that. They**  
10:59:05 21 **would be required to do that at our laboratory.**  
10:59:07 22 Q. Yeah.  
10:59:08 23 A. **They wouldn't just look at one of these**  
10:59:09 24 **and say, yeah, it's tremolite.**  
10:59:11 25 Q. Okay. But I'm asking -- it's not  
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10:59:12 **1** empirically what's going on, so focus on the  
10:59:15 **2** question. The question is, is it bad science to take  
10:59:17 **3** only, like in Exhibit 12, EDXA and a spectrum and  
10:59:25 **4** make a conclusion about the mineral?  
10:59:27 **5** MS. O'DELL: Object to the form.  
10:59:28 **6** THE WITNESS: Is it bad science? It's  
10:59:31 **7** observation. They can make an observation which  
10:59:33 **8** may lead them to additional kinds of  
10:59:37 **9** observations. You may take an expert in  
10:59:40 **10** mineralogy who looks at this and goes yeah, it's  
10:59:43 **11** tremolite. You may take an expert in mineralogy  
10:59:46 **12** in academia that would say it was.  
10:59:49 **13** Q. (By Mr. Chachkes) Okay. So it is good  
10:59:50 **14** science to take something like the EDXA printout in  
10:59:54 **15** isolation and say I know what mineral that is?  
10:59:55 **16** MS. O'DELL: Object to the form.  
10:59:56 **17** Misstates his testimony.  
10:59:57 **18** THE WITNESS: Right, we -- again, that's  
10:59:59 **19** not the way that we do that at our laboratory.  
11:00:01 **20** And you may have an academic that does that  
11:00:03 **21** who's a crystallographer or mineralogist who  
11:00:06 **22** looks at that and goes, yeah, it's tremolite.  
11:00:09 **23** Q. (By Mr. Chachkes) So what is your  
11:00:16 **24** recommended procedure for -- when is the tremolite  
11:00:18 **25** typed in the top? Is it right after the EDXA  
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11:00:20 **1** printout comes up?  
11:00:21 **2** A. **Well, as I say, they've done the**  
11:00:25 **3** **diffraction, they've looked at this. They may do**  
11:00:28 **4** **another EDS on this to verify what they got to start**  
11:00:31 **5** **with, and then they would probably type that in there**  
11:00:34 **6** **then.**  
11:00:34 **7** Q. Okay. I've seen no sample for which there  
11:00:36 **8** are two EDS. Does that mean we have not received  
11:00:39 **9** these duplicate EDS runs?  
11:00:42 **10** MS. O'DELL: Object to the form.  
11:00:43 **11** THE WITNESS: Well, no. Again, they may  
11:00:46 **12** do -- they may start to do an EDS on that, go,  
11:00:51 **13** yeah, that looks like tremolite, let me do the  
11:00:53 **14** diffraction on this, right, and then they may  
11:00:55 **15** come back and do a 300 seconds on the EDS.  
11:00:59 **16** So, you know, they're not going to call it  
11:01:01 **17** unless they're sure of it from the diffraction.  
11:01:05 **18** Q. (By Mr. Chachkes) Do you have a policy at  
11:01:08 **19** MAS for the order in which the various analyses are  
11:01:10 **20** done?  
11:01:10 **21** A. **Well, we have a protocol for that --**  
11:01:13 **22** Q. Okay.  
11:01:13 **23** A. **-- yeah.**  
11:01:13 **24** Q. Is it written?  
11:01:14 **25** A. **To my knowledge, yes.**  
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11:01:15 **1** Q. Okay. I would ask that that be produced.  
11:01:18 **2** Sitting here now, do you remember what  
11:01:20 **3** that protocol is, which comes first, like EDS or SAED  
11:01:27 **4** or visual morphology under TEM?  
11:01:29 **5** A. **Yeah, I want to say that it is EDS first,**  
11:01:31 **6** **and then they do the diffraction, but I would have to**  
11:01:35 **7** **look and see what it is.**  
11:01:37 **8** Q. Do the analysts type in the mineral  
11:01:41 **9** identification at the top of the printout at the time  
11:01:45 **10** they do the EDS before they do the diffraction?  
11:01:48 **11** MS. O'DELL: Object to the form. Asked  
11:01:49 **12** and answered.  
11:01:49 **13** THE WITNESS: Again, I would have to -- I  
11:01:52 **14** would have to see. I can't recall right now.  
11:01:55 **15** They're not going to type that on there unless  
11:01:57 **16** they're sure that -- understand that.  
11:01:59 **17** Q. (By Mr. Chachkes) It's a question  
11:02:00 **18** about timing.  
11:02:01 **19** A. **Yes, I understand the question about**  
11:02:03 **20** **timing. I get that. I get it.**  
11:02:04 **21** **They can start to do an EDS, then they can**  
11:02:07 **22** **do diffraction, and then they can make the call on**  
11:02:11 **23** **that. They're not going to make the call unless**  
11:02:13 **24** **they're sure.**  
11:02:14 **25** Q. Do you know whether the -- so it's  
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11:02:18 **1** possible that they go back into the software after  
11:02:22 **2** the diffraction and type in the name of the mineral  
11:02:26 **3** at the top of the EDS?  
11:02:27 **4** MS. O'DELL: Object to the form.  
11:02:28 **5** THE WITNESS: I don't know. I would have  
11:02:29 **6** to find out. But again, they're not going to  
11:02:32 **7** type that in there unless they're sure of it.  
11:02:34 **8** Q. (By Mr. Chachkes) Okay.  
11:02:34 **9** A. **That's what you need to understand.**  
11:02:35 **10** Q. Yeah, I know -- I understand your --  
11:02:35 **11** A. **I want you to understand that. You don't**  
11:02:37 **12** **seem to understand that.**  
11:02:38 **13** Q. You have said that ten times --  
11:02:39 **14** A. **Good.**  
11:02:40 **15** Q. -- it's on the record --  
11:02:41 **16** A. **I want to make it clear.**  
11:02:42 **17** Q. What I understand or don't understand is  
11:02:43 **18** really not at issue. It's what you understand, okay?  
11:02:46 **19** Do you understand that?  
11:02:46 **20** A. **Sure.**  
11:02:48 **21** Q. Okay.  
11:02:48 **22** A. **And what I'm telling you is it's not typed**  
11:02:50 **23** **on there unless they're sure of it.**  
11:02:52 **24** Q. All right. Now you've said that many  
11:02:52 **25** times.  
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11:02:53 **1 A. I can say it again.**  
11:02:54 **2 Q.** Okay. And so do you -- I guess I'd have  
11:02:59 **3** to talk to the analyst to figure out how they do  
11:03:01 **4** this.  
11:03:01 **5** MS. O'DELL: Object to form.  
11:03:02 **6** THE WITNESS: You can talk to Dr. Longo  
11:03:03 **7** and he can also tell you.  
11:03:04 **8 Q.** (By Mr. Chachkes) Yeah, but he's not  
11:03:05 **9** doing the runs either, is he?  
11:03:07 **10 A. Well, he directs the lab.**  
11:03:08 **11 Q.** All right.  
11:03:08 **12 A. So it's his responsibility.**  
11:03:10 **13 Q.** Okay. And looking at Exhibit 12, the  
11:03:18 **14** EDXA, what tells you that this is tremolite?  
11:03:20 **15 A. The peak sets that you have here.**  
11:03:23 **16 Q.** Okay. And when you say -- walk me through  
11:03:26 **17** that.  
11:03:26 **18 A. The peak sets?**  
11:03:27 **19 Q.** Yes. Why are these peak sets tremolite  
11:03:30 **20** and not some other mineral?  
11:03:32 **21 A. Some other mineral. Well, again, until**  
11:03:35 **22 you do the diffraction, you may not be completely**  
11:03:38 **23 sure of it, but the mag and the silicon ratios look**  
11:03:42 **24 correct and as well as the calcium ratios for**  
11:03:44 **25 tremolite.**  
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11:03:45 **1 Now, there's a small iron peak there. If**  
11:03:47 **2 that iron peak was increased significantly, it would**  
11:03:50 **3 be actinolite.**  
11:03:52 **4 Q.** Okay. Are there any instances where your  
11:04:01 **5** analysts get an EDS printout or spectra and say, ah,  
11:04:09 **6** that's not an asbestos?  
11:04:12 **7 A. I'm sure there are, yeah, yes.**  
11:04:14 **8 Q.** Okay. Give me an instance where there's  
11:04:16 **9** magnesium silicon peaks. What --  
11:04:18 **10** MS. O'DELL: Object to the form.  
11:04:18 **11 Q.** (By Mr. Chachkes) What were they looking  
11:04:20 **12** for?  
11:04:20 **13** MS. O'DELL: Object to the form.  
11:04:21 **14** Incomplete hypothetical.  
11:04:23 **15** THE WITNESS: Well, they may be looking at  
11:04:27 **16** certain types of clay minerals that may have a  
11:04:31 **17** mag-silicon ratio. You know, forget the calcium  
11:04:34 **18** for a minute. But they may go, well, you know,  
11:04:36 **19** that's not talc. They may do a diffraction on  
11:04:39 **20** it and they get some diffuse pattern, something  
11:04:42 **21** like that, and they go, you know, it's not that  
11:04:44 **22** so they'll move on. Essentially it's sort of a  
11:04:48 **23** screening process.  
11:04:49 **24 Q.** (By Mr. Chachkes) Okay. Are there  
11:05:00 **25** instances where an EDXA looks more like talc than  
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11:05:10 **1** actinolite?  
11:05:12 **2 A. Well -- it looks more like talc than**  
11:05:19 **3 actinolite, you're saying?**  
11:05:20 **4 Q.** Yeah.  
11:05:21 **5 A. I'd have to think about that. It's**  
11:05:23 **6 possible. Yeah, it's possible.**  
11:05:25 **7 Q.** Okay. And what would you be looking for?  
11:05:27 **8 A. Well, depending upon how much iron was in**  
11:05:33 **9 there. You know, you can have fibrous talc that**  
11:05:35 **10 would have, you know, some iron with it, that kind of**  
11:05:39 **11 thing. So it would just depend on the -- it would**  
11:05:41 **12 depend on the form and look at the diffraction**  
11:05:43 **13 pattern.**  
11:05:43 **14 Q.** Is there an EDXA in isolation that you  
11:05:47 **15** would say that's definitely talc, it is not  
11:05:50 **16** actinolite?  
11:05:50 **17 A. Yeah, I mean, again, if the iron -- if it**  
11:05:56 **18 practically has no iron and you're looking at the**  
11:05:58 **19 form of it and it's a plate, you go, well, yeah,**  
11:06:01 **20 that's most likely talc; you do the diffraction on**  
11:06:05 **21 it, it's most likely talc.**  
11:06:06 **22 Q.** So you brought in form, you brought in  
11:06:07 **23** diffraction --  
11:06:08 **24 A. Right.**  
11:06:08 **25 Q.** -- so I'm saying let's put those aside.  
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11:06:10 **1** Just in isolation, just looking at the EDXA, is there  
11:06:13 **2** an EDXA that in isolation you can say that's  
11:06:15 **3** definitely talc, it's not actinolite?  
11:06:17 **4** MS. O'DELL: Object to the form.  
11:06:18 **5** THE WITNESS: Again, if it had no iron --  
11:06:24 **6** I mean, you're looking at the thing. It's not  
11:06:26 **7** like you're not looking at it. It's on the  
11:06:28 **8** screen in front of you, so you can't divorce  
11:06:30 **9** that from it. So if I'm looking at the form of  
11:06:32 **10** it, I can tell whether it's platy or whether  
11:06:33 **11** it's fibrous.  
11:06:35 **12 Q.** (By Mr. Chachkes) Okay. Is there an  
11:06:38 **13** instance -- there's an EDXA in isolation that you  
11:06:42 **14** know is definitely tremolite and not actinolite?  
11:06:45 **15** MS. O'DELL: Object to the form.  
11:06:47 **16** THE WITNESS: No. No, not in isolation.  
11:06:49 **17 Q.** (By Mr. Chachkes) Okay. Do your analysts  
11:07:02 **18** record peak heights?  
11:07:03 **19 A. Do they record peak heights?**  
11:07:06 **20 Q.** Yes.  
11:07:06 **21 A. I don't think so.**  
11:07:07 **22 Q.** Okay. Do they record peak areas?  
11:07:10 **23 A. Again, the software does that.**  
11:07:12 **24 Q.** The judgment that your analysts make when  
11:07:17 **25** they're typing in the top of the EDXA of this  
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11:07:19 1 mineral --  
11:07:20 2 A. Yes.  
11:07:20 3 Q. -- as far as the EDXA printout goes, it's  
11:07:22 4 qualitative, not quantitative?  
11:07:24 5 A. Well, yeah, it is a qualitative analysis  
11:07:28 6 as they're looking at this.  
11:07:29 7 Q. And do you understand, when I say  
11:07:31 8 qualitative, it's not based on precise numbers, it's  
11:07:34 9 based on kind of their eyeball look at it?  
11:07:36 10 MS. O'DELL: Object to the form.  
11:07:37 11 THE WITNESS: That's the way most, I would  
11:07:40 12 say, laboratories do this.  
11:07:41 13 Q. (By Mr. Chachkes) So you include a lot of  
11:07:48 14 SAED patterns for -- in your report; right?  
11:07:52 15 A. Yes.  
11:07:52 16 Q. Okay. What is SAED?  
11:07:53 17 A. Selected area electron diffraction.  
11:07:55 18 Q. Can you just at a high level tell me how  
11:07:58 19 that works?  
11:08:00 20 A. Tell you how it works?  
11:08:01 21 Q. Yeah, just -- you know, you've got -- it's  
11:08:03 22 in the TEM, what do you do?  
11:08:04 23 A. Yep. We talked about it a little bit  
11:08:07 24 before. You essentially set the microscope up to  
11:08:13 25 isolate the beam on the area of interest, and then  
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11:08:17 1 it's very much like -- the sample is much like a  
11:08:23 2 prism.  
11:08:24 3 You know how you hold a prism up in the  
11:08:26 4 light and it breaks it all up into colors. All  
11:08:28 5 right. So the reason that's happening is because the  
11:08:30 6 electrons or, in this case, the wavelength of light,  
11:08:33 7 is slowed so that you get the different colors.  
11:08:38 8 In this case, the electron beam goes  
11:08:40 9 through the specimen and it strikes the lattice  
11:08:44 10 planes. These are the planes that make up the  
11:08:46 11 crystal and they reflect off and they give you all of  
11:08:48 12 these spots, patterns. And they're specific for the  
11:08:51 13 kind of material that you're looking at.  
11:08:52 14 Q. Okay. Can you identify a particle as  
11:08:55 15 asbestos with SAED alone?  
11:08:58 16 MS. O'DELL: Object to the form.  
11:08:59 17 THE WITNESS: You can get to an  
11:09:06 18 understanding of whether this is an amphibole,  
11:09:11 19 and then from there you need the other  
11:09:12 20 information to help make the conclusion.  
11:09:15 21 Q. (By Mr. Chachkes) And can you understand  
11:09:20 22 if a particle is an amphibole based on an SAED  
11:09:25 23 with -- in isolation that's only done with one axis?  
11:09:27 24 A. Yes, you can could that.  
11:09:29 25 Q. Okay. So you can see an SAED that's only  
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11:09:32 1 done in one axis, pick it up and say I am sure that's  
11:09:36 2 an amphibole?  
11:09:36 3 A. Yeah, if you measure it out, if you do the  
11:09:40 4 verification, you know, you do the measurements on  
11:09:42 5 it, it will give you the lattice parameters of an  
11:09:46 6 amphibole of some type or, you know, maybe a  
11:09:49 7 serpentine of some type if it's chrysotile. And then  
11:09:52 8 you can go, yeah, this is a -- it possibly is at this  
11:09:56 9 point.  
11:09:56 10 Q. Okay. I'm not asking if it possibly is.  
11:09:58 11 I'm saying is there a one-axis diffraction pattern  
11:10:01 12 that is uniquely -- strike that.  
11:10:07 13 A. Yeah.  
11:10:07 14 Q. If I had a one-axis diffraction pattern  
11:10:12 15 for a phyllosilicate, there's no way you're going to  
11:10:15 16 confuse that with an amphibole?  
11:10:17 17 A. Probably not.  
11:10:19 18 Q. Why not?  
11:10:20 19 A. They're stacked layers versus what is in  
11:10:28 20 an amphibole where you have essentially -- I don't  
11:10:34 21 know how to describe it. They're like railroad iron,  
11:10:41 22 what do you call it, like railroad tracks. That's  
11:10:44 23 how they're stacked up in an amphibole; whereas in a  
11:10:47 24 phyllosilicate, you've got flat planes mostly.  
11:10:50 25 Q. Okay. If I were to hand you a one-axis  
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11:10:51 1 SAED right now, you could tell me whether it was an  
11:10:54 2 amphibole versus a phyllosilicate?  
11:10:56 3 A. Probably. I don't know if I could tell  
11:10:59 4 you as I sit here right now, but, you know, based on  
11:11:01 5 the knowledge of the planes, measuring the crystal  
11:11:08 6 planes, it's a good possibility you could say, yeah,  
11:11:10 7 it's probably an amphibole.  
11:11:11 8 Q. Okay. Within a reasonable degree of  
11:11:13 9 scientific certainty?  
11:11:13 10 A. Yeah, I think you could say that, but  
11:11:17 11 you'd want more data on it to be able to call the  
11:11:20 12 class.  
11:11:20 13 Q. Did you do a comprehensive review of  
11:11:23 14 crystalline material to determine whether there are  
11:11:28 15 SAED patterns in one axis that look like amphiboles?  
11:11:35 16 MS. O'DELL: Object to the form.  
11:11:36 17 THE WITNESS: Well, I think the answer to  
11:11:37 18 that is there are a number of them, and  
11:11:42 19 depending upon the plane, the axis of the plane,  
11:11:52 20 you know, you've got to do the measurements on  
11:11:54 21 those.  
11:11:54 22 So the answer to that is there are a  
11:11:57 23 number of different planes; but in any one  
11:12:00 24 sitting, again, if you get a good diffraction  
11:12:04 25 pattern, you can still measure that pattern and  
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11:12:08 **1** come up with whether it is an amphibole.  
11:12:10 **2 Q.** (By Mr. Chachkes) The original question  
11:12:12 **3** is whether you did a comprehensive review of minerals  
11:12:14 **4** other than amphiboles, other than serpentine, to  
11:12:17 **5** determine whether there are one-axis SAED diffraction  
11:12:21 **6** patterns that you can't without more axes determine  
11:12:25 **7** whether it's an amphibole or another class. Did you  
11:12:29 **8** do that?  
11:12:29 **9** MS. O'DELL: Object to -- excuse me.  
11:12:30 **10** MR. CHACHKES: Let me finish my question.  
11:12:31 **11 Q.** (By Mr. Chachkes) Did you do such a  
11:12:32 **12** comprehensive review?  
11:12:34 **13** MS. O'DELL: Objection to form. That  
11:12:35 **14** wasn't the previous question. Object to the  
11:12:37 **15** form.  
11:12:37 **16** THE WITNESS: Well, I didn't do a  
11:12:39 **17** comprehensive review.  
11:12:40 **18 Q.** (By Mr. Chachkes) Okay. Did anybody do a  
11:12:41 **19** comprehensive review?  
11:12:42 **20 A. Well --**  
11:12:45 **21** MS. O'DELL: Object to the form.  
11:12:46 **22** THE WITNESS: -- understand -- once again,  
11:12:48 **23** understand that there's a huge body of  
11:12:53 **24** literature and standard methodologies that are  
11:12:55 **25** used for identifying these classes of minerals.  
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11:13:00 **1** It's well known.  
11:13:01 **2** You don't have to have -- I mean, you have  
11:13:04 **3** to have an awareness of that there that there  
11:13:07 **4** could be others, but focused in on these types  
11:13:10 **5** of minerals, you know, there's plenty of data to  
11:13:15 **6** be able to make a decision based on looking at  
11:13:18 **7** one plane.  
11:13:20 **8** For instance, chrysotile is a good  
11:13:22 **9** example. You can look at the diffraction  
11:13:24 **10** pattern and see that it's streaked and right  
11:13:27 **11** away know that I possibly have this kind of, you  
11:13:32 **12** know, asbestiform mineral, let me look at the  
11:13:36 **13** morphology, oh, it's rolled up like a scroll.  
11:13:39 **14** That's chrysotile. Oh, when I do the EDS, I've  
11:13:42 **15** got practically a 1-to-1 mag-silicon ratio.  
11:13:47 **16** Wow. You know, 99 percent sure that this is  
11:13:49 **17** chrysotile.  
11:13:49 **18 Q.** (By Mr. Chachkes) The original question  
11:13:51 **19** was did anybody at MAS --  
11:13:52 **20 A. I answered that.**  
11:13:53 **21 Q.** Okay. Let me ask --  
11:13:54 **22 A. Not to cut you off --**  
11:13:54 **23 Q.** You just did cut me off.  
11:13:54 **24 A. -- but I already answered that.**  
11:13:55 **25 Q.** Okay. Let me ask again.  
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11:13:56 **1** Did anybody at -- it's a yes or no  
11:13:59 **2** question.  
11:13:59 **3** Did anybody at MAS do a comprehensive  
11:14:01 **4** review to determine what I've asked?  
11:14:05 **5** MS. O'DELL: Object --  
11:14:05 **6** THE WITNESS: You'd have to ask Bill  
11:14:07 **7** Longo.  
11:14:07 **8** MS. O'DELL: Excuse me.  
11:14:08 **9** THE WITNESS: You'd have to ask Dr. Longo.  
11:14:08 **10 Q.** (By Mr. Chachkes) Okay. Sitting here  
11:14:09 **11** today you don't know?  
11:14:09 **12** MS. O'DELL: Object to form.  
11:14:09 **13** THE WITNESS: He could give you that  
11:14:14 **14** answer.  
11:14:14 **15 Q.** (By Mr. Chachkes) Okay. What about  
11:14:14 **16** you --  
11:14:14 **17** THE REPORTER: Wait, wait. You're talking  
11:14:14 **18** at the same time.  
11:14:14 **19** THE WITNESS: Dr. Longo. Sorry.  
11:14:22 **20** Dr. Longo.  
11:14:22 **21 Q.** (By Mr. Chachkes) Okay. But you can't  
11:14:22 **22** give me the answer? I have to ask Dr. Longo?  
11:14:26 **23 A. I don't know. That's my answer. Ask**  
11:14:29 **24 Dr. Longo.**  
11:14:29 **25 Q.** Is there a -- so there are SAED axes;  
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**1** correct?  
11:14:38 **2 A. Yes.**  
11:14:38 **3 Q.** And you can take an SAED image or pattern  
11:14:44 **4** on an axis or off an axis; right?  
11:14:47 **5 A. Uh-huh, yes.**  
11:14:47 **6 Q.** All right. Is there an off-axis single  
11:14:53 **7** SAED diffraction pattern that is signature-only  
11:14:57 **8** amphiboles?  
11:14:57 **9 A. I would have to review that, but typically**  
11:15:07 **10 the answer is if you get -- if you verify the**  
11:15:15 **11 spacing, the atomic spacings, at the variance for**  
11:15:19 **12 each one of the minerals, one of the -- you know,**  
11:15:23 **13 asbestiform minerals -- you know, they're in a group,**  
11:15:26 **14 there's a range for actually that spacing too, so --**  
11:15:30 **15 but if you come within that spacing, then you most**  
11:15:32 **16 likely have an amphibole.**  
11:15:33 **17 Q.** I wasn't asking you about most likely.  
11:15:35 **18** I'm asking about conclusive, 100 percent, you know  
11:15:38 **19** that's an amphibole.  
11:15:39 **20** MS. O'DELL: Object to the form.  
11:15:40 **21** THE WITNESS: I just told you.  
11:15:41 **22 Q.** (By Mr. Chachkes) Okay. You used the  
11:15:44 **23** word most likely. Let me ask you a different way.  
11:15:47 **24 A. What -- I try to answer -- you keep**  
11:15:49 **25 breaking these technologies up that we're using to**  
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11:15:54 **1** verify this, which includes morphology, the shape and  
 11:15:57 **2** form, which includes the chemistry, the EDS, and the  
 11:16:01 **3** SAED required in the standard methods, all right.  
 11:16:04 **4** These are the things. Each one of them by  
 11:16:08 **5** themselves, no.  
 11:16:09 **6** Q. Okay. I'm only asking questions. I'm not  
 11:16:12 **7** telling you what your report is consisting of. I'm  
 11:16:14 **8** not telling you anything. I'm just asking questions.  
 11:16:16 **9** So if you could just focus on the question --  
 11:16:19 **10** A. I'm trying to focus on it, but you keep  
 11:16:21 **11** bringing up things that don't go together. All  
 11:16:24 **12** right. They don't go together for the analysis.  
 11:16:25 **13** Q. Okay. If I were to tell you that a career  
 11:16:36 **14** academic mineralogist looked at one of your single  
 11:16:40 **15** axis identifications of an asbestos and said that  
 11:16:47 **16** SAED diffraction pattern can correspond to many  
 11:16:52 **17** different minerals, would you have reason to dispute  
 11:16:55 **18** that?  
 11:16:55 **19** A. No.  
 11:16:56 **20** MS. O'DELL: Object to the form.  
 11:16:57 **21** Q. (By Mr. Chachkes) Okay. If I brought in  
 11:16:58 **22** that same mineralogist who said this single axis  
 11:17:02 **23** diffraction pattern that you have can correspond to  
 11:17:07 **24** some nonamphibole minerals, do you have -- sitting  
 11:17:11 **25** here today do you have a reason to dispute that?  
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11:17:13 **1** A. Yes.  
 11:17:14 **2** Q. Okay. What is that reason?  
 11:17:14 **3** A. Well, I would have to see what the -- what  
 11:17:18 **4** they were disputing. I'd have to see the data first.  
 11:17:20 **5** And then I would like to know the qualifications of  
 11:17:23 **6** this expert and I would like to see what their  
 11:17:25 **7** quality control is in order to be able to say this  
 11:17:29 **8** person -- especially in academia, because academia  
 11:17:32 **9** most of the time doesn't have any kind of quality  
 11:17:34 **10** control.  
 11:17:34 **11** So I look a little bit less on their --  
 11:17:40 **12** you know, they may have been a professor in this for  
 11:17:42 **13** who knows how long. How long have they worked in the  
 11:17:45 **14** laboratory? What's their quality control? What have  
 11:17:48 **15** they done? This is what I want to know.  
 11:17:50 **16** Q. Do you --  
 11:17:51 **17** A. The analysts that we have -- so let me  
 11:17:53 **18** answer the question.  
 11:17:54 **19** The analysts we have essentially go  
 11:17:57 **20** through a process where they are tested by NIST  
 11:18:02 **21** NVLAP. Think are tested on a quarterly basis on  
 11:18:05 **22** unknowns that NIST sends to us that we have to  
 11:18:08 **23** identify, okay.  
 11:18:10 **24** So what academic professor does that?  
 11:18:13 **25** None that I know of.  
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**1** Q. Okay.  
 11:18:14 **2** A. So you can bring up all the academic  
 11:18:17 **3** professors, and I will dispute, you know, a lot of  
 11:18:19 **4** what they do.  
 11:18:20 **5** Q. Okay. If a supremely complicated --  
 11:18:27 **6** strike that.  
 11:18:27 **7** If a supremely qualified mineralogist and  
 11:18:31 **8** SAED expert were to tell you that one of your single  
 11:18:34 **9** axis diffraction patterns that you identified as  
 11:18:37 **10** asbestos can correspond to a nonamphibole -- on a  
 11:18:43 **11** theoretical basis based on the structure of the  
 11:18:45 **12** nonamphibole, sitting here today, do you have a  
 11:18:46 **13** reason to dispute that?  
 11:18:47 **14** MS. O'DELL: Object to the form.  
 11:18:49 **15** THE WITNESS: Yes.  
 11:18:49 **16** Q. (By Mr. Chachkes) Okay. What is that?  
 11:18:50 **17** A. I just told you. I'm not going to go  
 11:18:51 **18** through the answer all over again.  
 11:18:54 **19** Q. Okay. That was all practical. I'm now  
 11:18:56 **20** talking about theoretical.  
 11:18:56 **21** A. Same for that one, too. Same answer.  
 11:18:57 **22** Q. SAED patterns correspond to the lattice of  
 11:19:02 **23** a mineral; correct?  
 11:19:03 **24** A. Correct.  
 11:19:03 **25** Q. Is there a nonamphibole that has a lattice  
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11:19:09 **1** that could possibly give you a single axis  
 11:19:13 **2** diffraction pattern that looks like an amphibole?  
 11:19:17 **3** A. I don't know the answer to that because  
 11:19:20 **4** most of them are -- they have diffraction data for  
 11:19:24 **5** all these minerals, and there will be slight  
 11:19:27 **6** differences between them. So, you know, I would have  
 11:19:29 **7** to look at the data.  
 11:19:29 **8** Q. Okay. Can you identify -- okay, I think I  
 11:19:33 **9** already asked -- did I already ask you if you can  
 11:19:35 **10** identify a particle with SAED alone?  
 11:19:35 **11** A. Yeah.  
 11:19:36 **12** Q. Okay. I'm not going to --  
 11:19:37 **13** A. Yep.  
 11:19:38 **14** Q. -- again.  
 11:19:39 **15** Did I ask whether you can distinguish  
 11:19:41 **16** anthophyllite from talc --  
 11:19:42 **17** A. Yes.  
 11:19:42 **18** Q. -- SAED alone?  
 11:19:43 **19** A. Yes.  
 11:19:44 **20** Q. Okay. Sorry if I'm --  
 11:19:46 **21** A. That's okay.  
 11:19:46 **22** Q. Oh, I know where I am.  
 11:19:48 **23** Can you distinguish anthophyllite from  
 11:19:50 **24** cummingtonite with SAED alone?  
 11:19:53 **25** A. Let's see. The answer to that is  
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11:20:00 **1 possibly.**  
 11:20:02 **2 Q.** When you say possibly, can you be  
 11:20:04 **3 specific?**  
 11:20:04 **4 A.** Again, you'd have to do -- you'd have to  
 11:20:08 **5 do zone axis in a couple of different zones to tell,**  
 11:20:11 **6 and then you probably can say it's most likely. But**  
 11:20:14 **7 again, you'd want to do -- you'd want to do the EDS**  
 11:20:17 **8 and you'd, of course, look at the form of it, too.**  
 11:20:19 **9 Q.** So how many zone axes would you need if  
 11:20:22 **10 you only had SAED to rely on to determine whether you**  
 11:20:25 **11 were looking at anthophyllite or cummingtonite?**  
 11:20:28 **12 MS. O'DELL:** Object to the form.  
 11:20:29 **13 THE WITNESS:** You could do -- you could  
 11:20:31 **14 use one. It depends on the pattern that you**  
 11:20:34 **15 see. If it was more of an orthorhombic pattern,**  
 11:20:39 **16 you know, most likely anthophyllite; if it was**  
 11:20:44 **17 more a monoclinic pattern, most likely**  
 11:20:45 **18 cummingtonite.**  
 11:20:45 **19 Q.** (By Mr. Chachkes) Okay. Let me just show  
 11:20:45 **20 you what was marked yesterday as Exhibit 15.**  
 11:20:55 **21 Do you have 15? No. Here it is, I'm**  
 11:20:58 **22 sorry. Okay.**  
 11:21:01 **23 I'll represent to you what was -- what's**  
 11:21:05 **24 in Exhibit 15 is pulled from a textbook. Do you**  
 11:21:08 **25 recognize that as an SAED pattern in three axes?**  
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11:21:10 **1 A. Yes.**  
 11:21:11 **2 Q.** And is there any reason to believe this is  
 11:21:12 **3 an incorrect three-axes SAED pattern for tremolite?**  
 11:21:16 **4 MS. O'DELL:** Object to form.  
 11:21:17 **5 THE WITNESS:** I have no idea on that.  
 11:21:18 **6 What was this published in; do you know?**  
 11:21:20 **7 Q.** (By Mr. Chachkes) It's not coming to my  
 11:21:21 **8 mind right now but --**  
 11:21:22 **9 A. I need to know that.**  
 11:21:22 **10 Q.** Okay.  
 11:21:23 **11 A. Yep. I can't make any decisions on that**  
 11:21:26 **12 unless I know the surrounding stuff here.**  
 11:21:27 **13 Q.** That's fine.  
 11:21:28 **14 A. Yeah.**  
 11:21:28 **15 Q.** Sitting here today, any reason to believe  
 11:21:30 **16 this is incorrect?**  
 11:21:31 **17 MS. O'DELL:** Object to the form.  
 11:21:33 **18 THE WITNESS:** Again --  
 11:21:34 **19 MS. O'DELL:** He's answered your question.  
 11:21:36 **20 THE WITNESS:** Yep. It's hard to tell  
 11:21:38 **21 without, you know, knowing where this is from.**  
 11:21:42 **22 Q.** (By Mr. Chachkes) Okay. Is it your  
 11:21:44 **23 understanding that tremolite can have different SAED**  
 11:21:48 **24 patterns in the three different axes?**  
 11:21:52 **25 A. Again, it could. But once again, when you**  
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11:21:55 **1 measured that, when you measure out for each one of**  
 11:21:57 **2 the sets or wherever it would be, there are**  
 11:21:59 **3 parameters -- lattice parameters in each one of those**  
 11:22:03 **4 zones, and that would still be tremolite.**  
 11:22:04 **5 Q.** Okay. If --  
 11:22:06 **6 A. It would still be tremolite.**  
 11:22:07 **7 Q.** Okay.  
 11:22:08 **8 A. Okay.**  
 11:22:08 **9 Q.** Are you done?  
 11:22:09 **10 A. Yeah.**  
 11:22:09 **11 Q.** Okay. If you had an SAED pattern for a  
 11:22:11 **12 mineral in three separate axes and each one was**  
 11:22:14 **13 exactly the same, could it possibly be tremolite?**  
 11:22:17 **14 MS. O'DELL:** Object to the form.  
 11:22:18 **15 THE WITNESS:** I don't know.  
 11:22:18 **16 Q.** (By Mr. Chachkes) Wouldn't that mean it  
 11:22:20 **17 was a symmetric lattice and that tremolite doesn't**  
 11:22:24 **18 have a symmetric lattice?**  
 11:22:27 **19 A. Again, I don't know how to answer that**  
 11:22:28 **20 question.**  
 11:22:29 **21 Q.** Are you aware of what the lattice of  
 11:22:30 **22 tremolite looks like?**  
 11:22:31 **23 A. Yes. I am. It is monoclinic.**  
 11:22:35 **24 Q.** Okay. Is it perfectly symmetrical in the  
 11:22:38 **25 X, Y, and Z axes?**  
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11:22:40 **1 A. I don't know. I'd have to look at it.**  
 11:22:42 **2 Q.** Okay. We can take a break now, if you  
 11:22:51 **3 like.**  
 11:22:51 **4 A. Do you need a break?**  
 11:22:52 **5 Q.** Yeah.  
 11:22:54 **6 A. Sure.**  
 11:22:54 **7 (Recess from 11:22 a.m. to 11:42 a.m.)**  
 11:42:33 **8 Q.** (By Mr. Chachkes) Would you agree with  
 11:42:52 **9 the statement that the more complete the SAED pattern**  
 11:42:56 **10 an analyst obtains, the more likely the analyst is to**  
 11:43:00 **11 make an accurate determination of the crystal**  
 11:43:02 **12 structure?**  
 11:43:03 **13 A. I don't know what you mean by complete.**  
 11:43:08 **14 Aside from the definition of the SAED pattern,**  
 11:43:16 **15 sometimes they can be faint; they can be light. So**  
 11:43:21 **16 the more defined the pattern is, I would say that**  
 11:43:24 **17 helps.**  
 11:43:24 **18 Q.** Okay. When you say defined, you mean the  
 11:43:26 **19 kind of the -- when you say faint and light, that's**  
 11:43:31 **20 just a matter of how dark the dot is?**  
 11:43:32 **21 A. Yeah, well, the diffraction pattern**  
 11:43:34 **22 sometimes can be very -- it can be very faint, so,**  
 11:43:38 **23 you know, it just depends. So the more defined the**  
 11:43:43 **24 pattern is, the better.**  
 11:43:43 **25 Q.** What about the more focused the pattern,  
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11:43:46 1 the better?

11:43:47 2 A. Again, the pattern is usually going to be

11:43:52 3 focused properly -- when the microscope is set up

11:43:55 4 properly, you're going to get a good defined pattern.

11:43:58 5 So it's mainly the ability to see all the spots there

11:44:04 6 associated with that particular zone.

11:44:06 7 Q. If you get a SAED pattern where the dots

11:44:09 8 are unfocused, can that hamper the ability to

11:44:14 9 identify the crystal?

11:44:15 10 MS. O'DELL: Object to the form.

11:44:16 11 THE WITNESS: The answer to that is no.

11:44:18 12 Sometimes we see patterns that are smeared or

11:44:21 13 diffuse. Again, chrysotile is a good example of

11:44:23 14 that.

11:44:24 15 But if you see a very diffuse pattern,

11:44:28 16 then you may have what's more like an amorphous,

11:44:31 17 not a very crystalline material, and you'll see

11:44:34 18 that in rings.

11:44:35 19 Q. (By Mr. Chachkes) Are there instances

11:44:36 20 where you are unable to obtain a clear SAED pattern

11:44:40 21 so your data in that scenario is inconclusive?

11:44:44 22 MS. O'DELL: Object to the form.

11:44:45 23 THE WITNESS: You will work to get the

11:44:51 24 best pattern that you can out of the structure

11:44:52 25 that you have, so the answer to that is you

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11:44:54 1 won't use a pattern that's not acceptable.

11:44:57 2 Q. (By Mr. Chachkes) Right. The question

11:44:58 3 isn't about -- so the question is -- let me ask a

11:45:01 4 different question.

11:45:01 5 A. Okay.

11:45:02 6 Q. In doing the MDL samples, did you ever run

11:45:04 7 across a case where you were unable to obtain a clear

11:45:09 8 SAED pattern and so the SAED was inconclusive?

11:45:12 9 MS. O'DELL: Object to the form.

11:45:13 10 THE WITNESS: I don't know of any, no.

11:45:14 11 Q. (By Mr. Chachkes) Analysts can use the

11:45:18 12 information obtained from SAED to make distinctions

11:45:22 13 in the crystal system of the lattice, for example,

11:45:27 14 whether it's triclinic, monoclinic, cubic, or

11:45:30 15 orthorhombic?

11:45:33 16 A. Yes.

11:45:33 17 Q. Okay. Sorry.

11:45:37 18 A. I paused.

11:45:38 19 Q. Yes.

11:45:50 20 Describe how you or your analysts

11:45:53 21 calibrate the SAED apparatus.

11:45:56 22 A. The electron diffraction? Again, I'm not

11:45:59 23 an expert in that particular area, but what they

11:46:02 24 typically do is they'll do a sizing based on gold, a

11:46:08 25 film of gold, and from that they will make

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11:46:12 1 calculations on what the gold lattice parameters are,

11:46:17 2 and then they will compare that to the unknown using

11:46:21 3 that particular configuration.

11:46:23 4 Q. Okay. Sometimes you say diffraction

11:46:27 5 pattern, and just to be clear --

11:46:29 6 A. Sure.

11:46:29 7 Q. -- diffraction pattern, you're being

11:46:32 8 synonymous with SAED?

11:46:34 9 A. Yes.

11:46:34 10 Q. And how do your analysts determine when

11:46:38 11 it's appropriate to take multiple axes for a single

11:46:42 12 sample under SAED?

11:46:43 13 A. That's a good question. Typically we'll

11:46:46 14 do that for anthophyllite to verify that it is

11:46:50 15 anthophyllite. We'll take multiples on that.

11:46:52 16 It's not required in the standard method

11:46:55 17 to do that because typically you can do it in one

11:46:58 18 zone for the amphiboles. But to show that it's not

11:47:04 19 fibrous talc versus anthophyllite, you're essentially

11:47:08 20 going to take another one to verify it.

11:47:10 21 Q. Okay. For tremolite, you take one axis?

11:47:12 22 A. Yes, you can.

11:47:13 23 Q. Okay. Not what -- I'm not asking about

11:47:15 24 what you can do. So let me put it --

11:47:17 25 A. Yes.

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11:47:18 1 Q. Okay.

11:47:18 2 A. The answer's yes.

11:47:19 3 Q. Okay. There are no SAED patterns that you

11:47:23 4 created for the MDL samples that weren't produced;

11:47:23 5 correct?

11:47:25 6 A. Correct.

11:47:26 7 Q. And I'm seeing one SAED pattern for the

11:47:29 8 tremolite, meaning can I conclude that you've only

11:47:32 9 taken one SAED pattern for the tremolites?

11:47:34 10 A. I would say yes to that.

11:47:35 11 Q. Okay. And I'm seeing two SAED patterns

11:47:39 12 for anthophyllite. Is it okay for me to conclude

11:47:41 13 that you take only two patterns for anthophyllite?

11:47:45 14 A. Most likely yes, because again, we want to

11:47:48 15 be able to distinguish that from fibrous talc.

11:47:52 16 Q. Let's look at another exhibit. What

11:48:00 17 number is that? Is that like 16? Let's look at 16.

11:48:08 18 A. Okay.

11:48:08 19 Q. Do you recognize what's been marked as

11:48:10 20 Longo Exhibit 16?

11:48:13 21 A. Yes.

11:48:13 22 Q. What's a diffraction verification?

11:48:17 23 A. These are diffractions that have been done

11:48:21 24 on a sample that's already been analyzed, and what

11:48:24 25 the analyst does is they go back in and they verify

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11:48:27 **1 the diffraction pattern. They verify that it is, in**  
 11:48:31 **2 fact, whatever it was called before.**  
 11:48:33 **3 Q.** Yeah, I see that -- do you see the date  
 11:48:37 **4** verified down there in the lower left?  
 11:48:39 **5 A. Which one are we looking at? Page 1?**  
 11:48:40 **6 Q.** Let's look at the first page of that --  
**7 A. Okay.**  
 11:48:42 **8 Q.** -- that you actually see a verification.  
 11:48:44 **9** Most if not all of the verifications are after the  
 11:48:47 **10** date of your first report; is that correct?  
 11:48:51 **11** MS. O'DELL: At least on this page?  
**12** THE WITNESS: Yeah.  
 11:48:53 **13** MR. CHACHKES: Well, it's a question.  
 11:48:54 **14** THE WITNESS: I would think -- what's the  
 11:48:55 **15** question again?  
 11:48:56 **16 Q.** (By Mr. Chachkes) The question is were  
 11:48:56 **17** most if not all of your verifications for the MDL  
 11:48:59 **18** samples done after the date of your first report,  
 11:49:02 **19** which was October 14?  
 11:49:03 **20 A. I don't know. I'd have to look at these**  
 11:49:05 **21 and compare that to that date.**  
 11:49:06 **22 Q.** Okay. This verification, for example, was  
 11:49:13 **23** done after the date of your first report; correct?  
 11:49:16 **24 A. Yes.**  
 11:49:16 **25 Q.** Okay. And you're --  
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11:49:18 **1 A. Are you talking about the November report?**  
 11:49:19 **2 Q.** November 14 --  
 11:49:20 **3 A. Yes.**  
 11:49:20 **4 Q.** -- I'm saying that's the first report.  
 11:49:21 **5 A. Sure.**  
 11:49:22 **6 Q.** So at the very least, you had already  
 11:49:25 **7** determined by October 14 that this sample on the  
 11:49:29 **8** first page corresponded to anthophyllite before you  
 11:49:37 **9** had done the verification; correct?  
 11:49:44 **10 A. Well, the answer to that is yes, we**  
 11:49:46 **11 already had determined it was anthophyllite.**  
 11:49:47 **12 Q.** Okay. And so the verification's, what,  
 11:49:49 **13** kind of a belt and suspenders?  
 11:49:51 **14 A. Sure.**  
 11:49:51 **15** MS. O'DELL: Object to the form.  
 11:49:52 **16** THE WITNESS: Well, I mean, it's a  
 11:49:54 **17** follow-up.  
 11:49:54 **18 Q.** (By Mr. Chachkes) Okay. And I see that  
 11:49:58 **19** there's a range in the table of amphibole types up  
 11:50:02 **20** there at the top; do you see that?  
 11:50:04 **21 A. Yes.**  
 11:50:04 **22 Q.** What does the range column mean?  
 11:50:07 **23 A. That is the actual atomic spacing for that**  
 11:50:11 **24 lattice parameter. And, for instance, if you take**  
 11:50:15 **25 grunerite at the beginning there, you'll see it's**  
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11:50:18 **1 4.94 to 5.46. So within that range, if your spacing**  
 11:50:23 **2 falls within that range, it could be grunerite.**  
 11:50:28 **3 Q.** Now, for this verification page, you  
 11:50:34 **4** calculated a d-spacing of 5.23; correct?  
 11:50:38 **5 A. Correct.**  
 11:50:38 **6 Q.** And that falls within the range of every  
 11:50:40 **7** single amphibole on that list; right?  
 11:50:43 **8 A. Correct.**  
 11:50:43 **9 Q.** How was it that this verifies that this is  
 11:50:46 **10** anthophyllite when it falls within the range of every  
 11:50:48 **11** amphibole in your list?  
 11:50:49 **12 A. Well, again, this is not -- this is an**  
 11:50:52 **13 incomplete. We have to look at the EDS, and we also**  
 11:50:56 **14 have to look at the form again. So with that**  
 11:50:59 **15 standard methodology, then we can come to a**  
 11:51:02 **16 conclusion that it is anthophyllite.**  
 11:51:03 **17 So it's not done in a vacuum, if you will.**  
 11:51:05 **18 The only thing that's done in a vacuum is putting the**  
 11:51:08 **19 sample into the electron microscope.**  
 11:51:10 **20 But that is true, and you will see that**  
 11:51:13 **21 for these lattice parameters.**  
 11:51:18 **22 Q.** Okay. For this sample that we're looking  
 11:51:22 **23** at, the d-spacing indeed corresponds to grunerite,  
 11:51:24 **24** actinolite, tremolite, crocidolite, and  
 11:51:27 **25** anthophyllite; correct?  
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11:51:27 **1** MS. O'DELL: Object to the form.  
 11:51:28 **2** THE WITNESS: Well, I mean, it's within  
 11:51:29 **3** the range there. Again, this is why you can't  
 11:51:32 **4** just use the one method to say, oh, I'm going to  
 11:51:35 **5** use SAED and say that it is anthophyllite.  
 11:51:38 **6** You've got to go look at the form of it;  
 11:51:40 **7** you've got to go do the EDS to prove that it is.  
 11:51:44 **8** So yeah.  
 11:51:47 **9 Q.** (By Mr. Chachkes) Yeah, you would not use  
 11:51:48 **10** EDS d-spacing alone to determine the mineral you're  
 11:51:53 **11** looking at because it falls under too many different  
 11:51:55 **12** minerals; correct?  
 11:51:55 **13** MS. O'DELL: Object to the form.  
 11:51:56 **14** THE WITNESS: It tells you that it is an  
 11:51:58 **15** amphibole, that it is in that range. And again,  
 11:52:00 **16** we do -- let's see. There should be another one  
 11:52:03 **17** here of the same one. Let's see.  
 11:52:10 **18** Number 301 01. If you go to the next  
 11:52:12 **19** page, you'll see this is the same structure  
 11:52:14 **20** again, same structure again, the second  
 11:52:17 **21** verification. Down here you'll see the zone, it  
 11:52:20 **22** was a 101, and the d-spacing for that zone are  
 11:52:25 **23** shown there for each one of the angles -- you  
 11:52:27 **24** know, each one of the lattice parameters, and  
 11:52:30 **25** this verifies it as anthophyllite if you were  
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11:52:34 **1** looking at the table, the spacing table. So  
 11:52:37 **2** then we look at the EDS, the EDS confirms again  
 11:52:40 **3** the chemistry. So, you know, it's dead to right  
 11:52:45 **4** anthophyllite.  
 11:52:46 **5 Q.** (By Mr. Chachkes) So you're just looking  
 11:52:47 **6** at -- so I see the spacing here is 21.2?  
 11:52:50 **7 A. Right. Now that's in -- this zone is 101**  
 11:52:54 **8 zone.**  
 11:52:55 **9 Q.** Okay.  
 11:52:56 **10 A. Okay. That is what it would be in the 101**  
 11:52:58 **11 zone.**  
 11:52:58 **12 Q.** And you don't have ranges for the 101  
 11:53:01 **13** zone, do you?  
 11:53:02 **14 A. Well, there are tables for the ranges in**  
 11:53:03 **15 the 101 zone. We don't have one right here --**  
 11:53:07 **16 Q.** Okay.  
 11:53:07 **17 A. -- but there are table ranges for that.**  
 11:53:09 **18 Q.** When you say -- so for this table on the  
 11:53:12 **19** second page of -- the second verification, are you  
 11:53:16 **20** looking at the 5.05 down at the bottom?  
 11:53:19 **21 A. Yes.**  
 11:53:19 **22 Q.** Okay. That 5.05 falls within every single  
 11:53:23 **23** amphibole type in your table as well?  
 11:53:26 **24 A. No, no. It's a combination of the HKO,**  
 11:53:29 **25 the HKL, the zone that you're in what the angle is.**  
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11:53:32 **1 There are tables for these. You know what I'm**  
 11:53:35 **2 saying? We had talked about that a little bit**  
 11:53:37 **3 before. There are tables for these. And in each one**  
 11:53:41 **4 of the zones there are spacings, spacing tables, and**  
 11:53:45 **5 these fit in the anthophyllite zone.**  
 11:53:48 **6 Q.** When you say these, do you mean the 101  
 11:53:51 **7** spacing of 21.2?  
 11:53:52 **8 A. Well, yes.**  
 11:53:53 **9 Q.** Okay. And that table's not reproduced in  
 11:53:55 **10** this page; correct?  
 11:53:56 **11 A. No, it's not here.**  
 11:53:57 **12 Q. So in the peer-reviewed literature I would**  
 11:53:59 **13 find that a 101 zone spacing of 21.2 will correspond**  
 11:54:09 **14 uniquely to anthophyllite?**  
 11:54:09 **15 A. The answer to that is yes.**  
 11:54:11 **16 Q.** Okay. Can you tell me what peer-reviewed  
 11:54:13 **17** literature?  
 11:54:13 **18 A. Let's see. There's a large body of card**  
 11:54:19 **19 data, diffraction card data, and again, there are**  
 11:54:22 **20 zone tables in that data, and that's where it comes**  
 11:54:25 **21 from. That's why we do the -- that's why we do the**  
 11:54:29 **22 double verification on anthophyllite, you know,**  
 11:54:30 **23 because it doesn't fit with talc.**  
 11:54:33 **24 Q.** Can you tell me conclusively whether there  
 11:54:38 **25** are other minerals that in the zone 101 have spacing  
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11:54:47 **1** of 21.2 in that range?  
 11:54:49 **2 A. I can't tell you that as I sit here.**  
 11:54:51 **3 Q.** Okay. Does the verification -- have you  
 11:55:04 **4** ever done a verification and the spacing fell outside  
 11:55:07 **5** the range of what you had already identified?  
 11:55:09 **6 A. I don't know the answer to that.**  
 11:55:10 **7 Q.** Did that happen for the MDL at all? You  
 11:55:13 **8** just don't know?  
 11:55:14 **9 A. I don't know.**  
 11:55:14 **10** MS. O'DELL: Object to the form.  
 11:55:15 **11** THE WITNESS: Yeah, I don't know.  
 11:55:16 **12 Q.** (By Mr. Chachkes) If it happened, you  
 11:55:18 **13** would have reported it; right?  
 11:55:19 **14 A. Well, yes. I would think so, yes.**  
 11:55:21 **15 Q.** Did you do any of these d-spacing  
 11:55:30 **16** verifications prior to the first draft, the  
 11:55:33 **17** November 14 version of your report?  
 11:55:35 **18 A. I --**  
 11:55:36 **19** MS. O'DELL: Feel free to look through it  
 11:55:37 **20** if you need to. Look at the dates.  
 11:55:39 **21** THE WITNESS: Let's see what we've got  
 11:55:40 **22** here. Yeah, it looks like a few. Some of them  
 11:55:47 **23** were here. Get towards the back. They were  
 11:55:49 **24** done in October.  
 11:55:52 **25** It looks like about half of them; half of  
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11:55:54 **1** them were done before that first report.  
 11:55:56 **2 Q.** (By Mr. Chachkes) Can I conclude because  
 11:56:00 **3** some were done after and some were done before the  
 11:56:02 **4** first report, it wasn't material to your findings in  
 11:56:05 **5** the first report?  
 11:56:07 **6** MS. O'DELL: Object to the form.  
 11:56:10 **7** THE WITNESS: Are you saying the ones that  
 11:56:12 **8** are after that are not material? What's the  
 11:56:14 **9** question?  
 11:56:15 **10 Q.** (By Mr. Chachkes) No.  
 11:56:15 **11** So clearly before -- at the time of your  
 11:56:18 **12** first report there were MDL samples on which you had  
 11:56:23 **13** not done a d-spacing verification; correct?  
 11:56:25 **14 A. No, we did the verification. I mean, we**  
 11:56:28 **15 did -- I mean, you have to understand it was called**  
 11:56:31 **16 at the time based on the data that we had for that**  
 11:56:38 **17 pattern, that chemistry, that morphology.**  
 11:56:40 **18 So again, I would say that they all have**  
 11:56:46 **19 been verified prior to that.**  
 11:56:47 **20 Q.** Okay. So I want to make sure we're clear  
 11:56:50 **21** here.  
 11:56:50 **22 A. Sure.**  
 11:56:51 **23 Q.** So going back to the first verification, I  
 11:56:54 **24** see -- it says date verified November 19; correct?  
 11:56:57 **25 A. Yes.**  
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11:56:57 **1 Q.** You're saying there was another  
11:56:59 **2** verification prior to November 14?  
11:57:01 **3 A. Sure.**  
**4 Q.** And you did --  
11:57:01 **5 A. The actual analysis, when it was actually**  
11:57:03 **6 done.**  
11:57:03 **7 MR. CHACHKES:** Okay. So we would actually  
11:57:06 **8** request that that other data be produced.  
11:57:08 **9 MS. O'DELL:** It's been produced.  
11:57:09 **10 THE WITNESS:** You already have it. It's  
11:57:10 **11** all in the reports.  
11:57:11 **12 Q.** (By Mr. Chachkes) Okay.  
11:57:12 **13 A. Yeah.**  
11:57:12 **14 Q.** So was there a -- why did you redo it on  
11:57:16 **15 11/19?**  
11:57:17 **16 A. It's just part of our quality control. We**  
11:57:20 **17 eventually have to do it as part of quality.**  
11:57:22 **18 Q.** So every single d-spacing that you did,  
11:57:25 **19** you did twice?  
11:57:26 **20 A. If it was anthophyllite, yeah.**  
11:57:28 **21 Q.** Okay. So the tremolites were all done --  
11:57:34 **22** so let me just -- I'm looking at a page for tremolite  
11:57:37 **23** where the verification is 11/19.  
11:57:41 **24 A. Okay. I mean, we've got anthophyllites**  
11:57:45 **25 that were double-verified before that report also**  
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11:57:48 **1 that was on 10/31/2018.**  
11:57:51 **2 Q.** Right.  
11:57:51 **3 A. There are a number of them here in the**  
11:57:53 **4 report.**  
11:57:53 **5 Q.** So --  
11:57:54 **6 A. Numerous.**  
11:57:55 **7 Q.** You're saying some of the tremolites were  
11:57:57 **8** double-verified?  
11:57:58 **9 MS. O'DELL:** Object to the form.  
11:57:59 **10 THE WITNESS:** No, I don't think the  
11:58:00 **11** tremolites were. The anthophyllites are.  
11:58:03 **12 Q.** (By Mr. Chachkes) Okay.  
**13 A. Yes.**  
11:58:03 **14 Q.** I can show you. I just don't have the  
11:58:04 **15** page numbers.  
11:58:05 **16 A. Okay.**  
11:58:05 **17 Q.** If you look at that one --  
**18 A. All right.**  
11:58:07 **19 Q.** -- in the exhibit --  
11:58:09 **20 MS. O'DELL:** So let's be clear on the  
11:58:10 **21** record. Is there a sample number --  
**22 Q.** (By Mr. Chachkes) You say the sample  
11:58:12 **23** number. What's the sample number for that one?  
11:58:13 **24 A. M68503-020-002.**  
11:58:20 **25 Q.** And that was the tremolite; correct?  
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11:58:22 **1 A. That was a tremolite, yes.**  
11:58:23 **2 Q.** And it was verified after the date of the  
11:58:25 **3** first report; correct?  
11:58:26 **4 A. 11/19/2018. What is the date of the first**  
11:58:31 **5 report?**  
11:58:33 **6 MS. O'DELL:** 11/14.  
11:58:33 **7 Q.** (By Mr. Chachkes) 11/14.  
11:58:34 **8 A. 14. Okay. Yeah.**  
11:58:34 **9 Q.** So that was verified after the date of the  
11:58:37 **10** first report; correct?  
11:58:38 **11 A. Uh-huh.**  
11:58:38 **12 Q.** That means that as of the date of the  
11:58:40 **13** first report it had not been verified?  
11:58:41 **14 MS. O'DELL:** Objection to form.  
11:58:43 **15 MS. PARFITT:** Objection.  
11:58:44 **16 THE WITNESS:** Well, let's back up just a  
11:58:45 **17** second. The actual date of the photo, okay, the  
11:58:48 **18** diffraction photo, was 10/26/2018, okay. So it  
11:58:52 **19** actually was done before that.  
11:58:54 **20 Q.** (By Mr. Chachkes) The photo was taken --  
11:58:55 **21 A. The photo was taken, okay, and that's the**  
11:58:58 **22 data. The photo is the data. So regardless of this**  
11:59:02 **23 right here, all right, that is the pattern, and**  
11:59:06 **24 that's what it was.**  
11:59:10 **25 Q.** You know what I'm talking about; right?  
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11:59:13 **1 A. Yeah, I know what you mean.**  
**2 Q.** The actual --  
**3 A. I get that.**  
11:59:13 **4 MS. O'DELL:** Let him finish.  
11:59:13 **5 Q.** (By Mr. Chachkes) Let me just finish.  
**6 A. Okay.**  
11:59:14 **7 Q.** Taking the photo and turning it into  
11:59:16 **8** useful data in a verification that gives you  
11:59:17 **9** d-spacing, you didn't do that until after the report?  
11:59:19 **10 MS. O'DELL:** Object to form.  
11:59:20 **11 THE WITNESS:** Well, again, I would have to  
11:59:21 **12** consult with the laboratory to see, you know,  
11:59:25 **13** what actually was done here. But the data  
11:59:27 **14** existed before the report was done.  
11:59:28 **15 Q.** (By Mr. Chachkes) That's not my question.  
11:59:29 **16 A. I understand that. But understand that it**  
11:59:33 **17 was already verified prior to that or wouldn't have**  
11:59:35 **18 ended up in the report as tremolite.**  
11:59:37 **19 Q.** Was it verified with d-spacing prior to  
11:59:39 **20** the report at 11/14?  
11:59:41 **21 A. I would have to check on that, but to my**  
11:59:43 **22 knowledge, it would be, yeah.**  
11:59:44 **23 Q.** Okay. So this would be a second d-spacing  
11:59:47 **24** calculation that you did for the tremolite?  
11:59:49 **25 MS. O'DELL:** Object to the form.  
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11:59:50 **1** THE WITNESS: Yes.  
11:59:50 **2 Q.** (By Mr. Chachkes) Okay.  
11:59:52 **3 A. Yes.**  
11:59:52 **4 Q.** When you did the first one -- strike that.  
11:59:58 **5 A. Okay.**  
11:59:58 **6 Q.** D-spacing's important to determining  
12:00:03 **7** whether you're accurately identifying a mineral using  
12:00:08 **8** diffraction patterns?  
12:00:11 **9** MS. O'DELL: Objection to form.  
12:00:12 **10** THE WITNESS: It's part of the standard  
12:00:13 **11** methodology.  
12:00:14 **12 Q.** (By Mr. Chachkes) Is it an important  
12:00:15 **13** part?  
12:00:15 **14** MS. O'DELL: Objection to form.  
12:00:16 **15** THE WITNESS: Well, I would think that if  
12:00:17 **16** you wanted the answer that, again, is it part of  
12:00:22 **17** the methodology, a lot of standards use that, so  
12:00:25 **18** yes.  
12:00:26 **19 Q.** (By Mr. Chachkes) Okay. Your methodology  
12:00:29 **20** of -- that you've described today for how you did  
12:00:33 **21** SAED -- strike that.  
12:00:37 **22 A. Good.**  
12:00:37 **23 Q.** Let's look at a specific section from your  
12:00:44 **24** report. And so you -- yes.  
12:00:53 **25** This is sample M68503-208 -- go slow  
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12:02:05 **1** MS. O'DELL: And it's M68503-028?  
12:02:10 **2** MR. CHACHKES: -028, correct.  
12:02:17 **3** THE WITNESS: What's the decade?  
12:02:19 **4 Q.** (By Mr. Chachkes) I'm told the '70s.  
12:02:38 **5 A. Let's see what it says here -- 03 --**  
**6** MS. O'DELL: Is that it?  
12:02:39 **7** THE WITNESS: Should be section 8 -- you  
12:02:41 **8** said 028? It should be section -- well, it's  
12:02:44 **9** section 8 in ours. I'm not sure what it is in  
12:02:47 **10** here.  
12:02:50 **11** MS. O'DELL: Here we go.  
12:02:51 **12** THE WITNESS: Section 8. Okay. There we  
12:03:07 **13** go.  
12:03:08 **14 Q.** (By Mr. Chachkes) Okay. Are you there?  
12:03:11 **15 A. Yes.**  
12:03:11 **16 Q.** Okay. So it's anthophyllite, so you would  
12:03:13 **17** expect two diffraction patterns; correct? Can you  
12:03:19 **18** see two diffraction patterns?  
12:03:21 **19 A. In this, there may be just one here.**  
12:03:24 **20 There may be two on the verification, but let's see**  
12:03:26 **21 if there is. Let's see.**  
12:03:31 **22 41391. Yes. There's two of them.**  
12:03:32 **23 Q.** Why did you say there may be just one?  
12:03:34 **24 A. Oh, well, I was thinking the -- I was**  
12:03:37 **25 thinking anything else but anthophyllite. But**  
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12:01:00 **1** here -- -028. Sorry. It's page 585 of the version  
12:01:07 **2** of the January 15 report that was produced to us.  
12:01:12 **3** And plaintiffs' counsel --  
12:01:13 **4** MS. O'DELL: I didn't catch that number.  
12:01:15 **5** Excuse me. What was it?  
12:01:16 **6** MR. CHACHKES: It was M68503-028.  
12:01:23 **7** MS. O'DELL: What's the page of the  
12:01:27 **8** report?  
12:01:27 **9** MR. CHACHKES: 585 of the version produced  
12:01:27 **10** to us. And you brought us versions separated by  
12:01:27 **11** decades, so you can find it in the 1970s  
12:01:30 **12** notebook. Okay.  
12:01:36 **13 Q.** (By Mr. Chachkes) And let's mark this as  
12:01:38 **14** a separate exhibit just so you can have it in front  
12:01:40 **15** of you without a huge binder.  
12:01:40 **16** MS. O'DELL: It's --  
12:01:44 **17** MR. CHACHKES: You want to do it in the  
12:01:46 **18** binder? That's fine. If you can locate it, I  
12:01:50 **19** don't care.  
12:01:50 **20** MS. O'DELL: I just don't want -- if he  
12:01:51 **21** needs to look at any other data, I want it to be  
12:01:54 **22** available to him. You're welcome to hand him  
12:01:55 **23** the exhibit, but I want to find it as well.  
12:01:56 **24** MR. CHACHKES: If you're going to find it,  
12:01:57 **25** it's just easy enough to do it that way.  
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12:03:40 **1 they're both here.**  
12:03:41 **2 Q.** So for anthophyllite you always expect two  
12:03:43 **3** patterns in your report; correct?  
12:03:45 **4 A. There should be, yes.**  
12:03:45 **5 Q.** Okay. Now, looking at these diffraction  
12:03:49 **6** patterns, is there -- for this single sample that  
12:03:54 **7** we're looking at, can you use just those diffraction  
12:03:58 **8** patterns to tell whether or not it's cummingtonite as  
12:04:05 **9** an option?  
12:04:06 **10** MS. O'DELL: Object to the form.  
12:04:21 **11** THE WITNESS: What's the question again?  
12:04:23 **12 Q.** (By Mr. Chachkes) So can you tell from  
12:04:25 **13** the two diffraction patterns that you have for sample  
12:04:28 **14** M68503-028 whether this is anthophyllite versus  
12:04:35 **15** cummingtonite, just focusing on the diffraction  
12:04:37 **16** patterns?  
12:04:38 **17 A. No.**  
12:04:38 **18 Q.** And why not?  
12:04:39 **19 A. Well, they can have a similar diffraction**  
12:04:42 **20 pattern if this looks like -- this looks like an**  
12:04:47 **21 orthorhombic pattern, just looking at it. So the**  
12:04:54 **22 cummingtonite is going to have more of a monoclinic**  
12:04:56 **23 pattern.**  
12:04:56 **24 Q.** But you answered no. Why did you answer  
12:04:58 **25** no?  
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1 A. What --

12:05:00 2 Q. You said no to my question.

12:05:01 3 A. What was the question again?

12:05:02 4 Q. Can you tell whether -- from just the EDS

12:05:06 5 patterns whether this is cummingtonite or

12:05:07 6 anthophyllite?

12:05:07 7 A. Well, again, the answer is still no.

12:05:16 8 Q. I'm sorry, let me ask the question again

12:05:18 9 because I'm told by my associate that I misspoke.

12:05:23 10 Can you tell from the diffraction patterns

12:05:28 11 alone for sample M68503-028 whether this is

12:05:37 12 anthophyllite or cummingtonite?

12:05:39 13 A. I think I just answered that twice.

12:05:41 14 Q. Okay. And the answer was no?

12:05:42 15 A. Yeah. I mean, it appears to be an

12:05:44 16 orthorhombic pattern.

12:05:47 17 Q. Okay. What is the definition of

12:05:53 18 asbestiform?

12:05:54 19 A. Well, it actually means asbestos-like,

12:05:59 20 that's what the word means, like asbestos.

12:06:01 21 Q. So what is asbestos?

12:06:03 22 A. Well, the classic definition of

12:06:09 23 asbestiform would be a structure that is 1/2 a micron

12:06:13 24 in size with substantially parallel sides. Some

12:06:18 25 literature adds the stipulations of tensile strength

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12:06:24 1 and all of that kind of thing, and most of them,

12:06:27 2 those definitions, are sort of on a geological macro

12:06:31 3 scale. That's what they're meant to describe.

12:06:33 4 Q. Okay. For your purposes, when you use the

12:06:35 5 word asbestos or asbestiform in your report, you're

12:06:38 6 saying -- are you saying anything more than 1/2 a

12:06:42 7 micron in size, substantially parallel sides?

12:06:45 8 A. Yes. I mean, it's a regulated definition.

12:06:51 9 Q. Yeah, but what I'm asking is if -- is

12:06:54 10 there any other qualification in your definition when

12:06:57 11 you use the phrase -- the words asbestiform or

12:07:00 12 asbestos in your report?

12:07:01 13 A. Well, we're going by the -- again, by the

12:07:04 14 classic definition of what I just described. Then

12:07:09 15 you go in and you do the diffraction, the EDS, and

12:07:13 16 the form of it of course -- you know, and then you

12:07:16 17 make a decision on that. But as far as, you know,

12:07:18 18 using that term, you know, it's mainly based on that

12:07:22 19 definition.

12:07:23 20 Q. Substantially parallel sides, 1/2 a

12:07:26 21 micron?

12:07:26 22 A. 1/2 a micron, yeah, yeah.

12:07:29 23 Q. Okay. What about aspect ratio, is that

12:07:30 24 part of your definition?

12:07:31 25 A. Well, again, it depends on the -- some of

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12:07:36 1 the standards that you look at, the aspect ratio

12:07:41 2 is -- if you're talking OSHA, the aspect ratio is

12:07:44 3 3-to-1. If you're talking AHERA, EPA, the aspect

12:07:48 4 ratio is 5-to-1. If you're talking ISO, the ratio is

12:07:53 5 5-to-1. If you're talking ASTM, the ratio is 5-to-1.

12:07:57 6 So we go by 5-to-1, yeah.

12:07:59 7 Q. Am I correct in concluding that every time

12:08:04 8 in your expert report you use the word asbestos or

12:08:06 9 asbestiform, you're -- among the other qualifications

12:08:11 10 you said it's got at least a 5-to-1 ratio?

12:08:13 11 A. It should, yes.

12:08:14 12 Q. Okay. What about at least a 3-to-1 ratio?

12:08:16 13 A. And again, that's an OSHA. We're looking

12:08:20 14 at 5-to-1. OSHA will call it at that. They will

12:08:25 15 call it asbestos at that ratio.

12:08:29 16 So but in all of our reporting we're at

12:08:33 17 5-to-1. So we do see 3-to-1 structures, and as far

12:08:39 18 as the body's concerned, it's going to treat the

12:08:41 19 3-to-1 to 5-to-1 probably in the same manner. So

12:08:46 20 I've always testified that way. The structures that

12:08:49 21 it encounters, regardless of the aspect ratio, have

12:08:53 22 to be dealt with in the body.

12:08:54 23 Q. For the purposes of your report, did you

12:08:56 24 count a 3-to-1 as a fiber, an asbestos fiber?

12:08:59 25 A. Not that I'm aware of.

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12:09:02 1 Q. Okay. Let me show you some testimony from

12:09:06 2 Dr. Longo from -- oh. Well, no, let's do this.

12:09:17 3 Can we mark this as the next exhibit.

12:09:37 4 (Defendants' Exhibit 2 was marked for

12:09:37 5 identification.)

12:09:37 6 Q. (By Mr. Chachkes) Okay. Can you turn to

12:09:44 7 page 3021. This is the deposition -- this is an

12:09:51 8 examination of Dr. Longo under oath.

12:09:55 9 Can you turn to page 3021? It's the very

12:09:59 10 last sheet. I'm going to read you a question and

12:10:01 11 answer. You can following along. It starts at

12:10:04 12 line 4.

12:10:05 13 Line 4, My question to you, Dr. Longo, is

12:10:07 14 that transmission electron microscopy cannot tell you

12:10:11 15 if you identify a single fiber whether or not that

12:10:14 16 particle is asbestiform or nonasbestiform; correct?

12:10:18 17 Answer: That is correct.

12:10:21 18 Do you agree with that testimony?

12:10:24 19 MS. O'DELL: Object to the form.

12:10:25 20 THE WITNESS: I don't -- I haven't read

12:10:27 21 this, so I don't know what preceded the question

12:10:30 22 there. I see what it says. So I don't have an

12:10:35 23 opinion on that.

12:10:35 24 Q. (By Mr. Chachkes) Okay. Putting aside

12:10:38 25 the transcript, I'm just going to ask you the

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12:10:40 **1** question independent of whatever this means in the  
12:10:42 **2** transcript.  
12:10:44 **3** Do you, Dr. Rigler, believe that  
12:10:49 **4** transmission electron microscopy cannot tell you if  
12:10:51 **5** you identify a single fiber whether or not that  
12:10:54 **6** particle is asbestiform or nonasbestiform?  
12:10:56 **7** MS. O'DELL: Object to form.  
12:10:58 **8** THE WITNESS: Again, if they're including  
12:11:05 **9** things like tensile strength, flexibility, that  
12:11:09 **10** type of thing, you can't do that by TEM. So as  
12:11:15 **11** far as the form goes, like asbestos, having a  
12:11:18 **12** form of asbestos which is fibrous, the  
12:11:21 **13** description of it, you definitely can.  
12:11:23 **14** So but again, I don't know what the  
12:11:25 **15** context of this is, so, you know, I don't have  
12:11:30 **16** an opinion on that in reference to this.  
12:11:32 **17** Q. (By Mr. Chachkes) Okay. Have you ever  
12:11:33 **18** known Dr. Longo to use a geologic definition of  
12:11:37 **19** asbestos?  
12:11:37 **20** A. No.  
12:11:38 **21** Q. Okay. And so when he testified that a TEM  
12:11:42 **22** cannot tell you if you identify a single fiber  
12:11:45 **23** whether or not that particle is asbestiform or  
12:11:47 **24** nonasbestiform, you understand that to mean his  
12:11:50 **25** regulatory definition; correct?  
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12:11:52 **1** MS. O'DELL: Excuse me. Object to the  
12:11:53 **2** form. Doesn't speak to the context.  
12:11:56 **3** You may answer.  
12:11:57 **4** THE WITNESS: Can you restate?  
12:12:00 **5** MR. CHACHKES: Do you mind reading it  
12:12:02 **6** back.  
12:12:05 **7** (The record was read by the reporter.)  
12:12:44 **8** THE WITNESS: Well, I mean, it would be  
12:12:47 **9** based on the regulatory definition. So, I mean,  
12:12:52 **10** that's all I can say about that.  
12:12:55 **11** Again, I don't know what the context was  
12:12:57 **12** in this. I can't speak for Dr. Longo. So  
12:13:02 **13** that's the best answer I can give.  
12:13:04 **14** Q. (By Mr. Chachkes) Is there any world in  
12:13:05 **15** which it's correct to say that under your regulatory  
12:13:08 **16** definition a TEM cannot tell you if you identify a  
12:13:11 **17** single fiber whether or not that particle is  
12:13:14 **18** asbestiform or nonasbestiform?  
12:13:15 **19** MS. O'DELL: Object to the form.  
12:13:17 **20** THE WITNESS: It's such a broad question  
12:13:22 **21** about that, I don't know quite how to answer it,  
12:13:26 **22** other than the way that I've already answered  
12:13:28 **23** it. Because when you say in any world, I mean,  
12:13:32 **24** it's very broad. Broad question.  
12:13:34 **25** Q. (By Mr. Chachkes) Is there any way that  
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12:13:36 **1** could be correct?  
12:13:36 **2** A. I don't know.  
12:13:38 **3** Q. Is there any peer-reviewed literature or  
12:13:41 **4** regulatory material that says that TEM cannot tell  
12:13:47 **5** you if you identify a single fiber whether or not  
12:13:49 **6** that particle is asbestiform or nonasbestiform?  
12:13:52 **7** A. I mean, I can't think of any as I sit  
12:13:56 **8** here. I can't think of any.  
12:13:57 **9** Q. Okay. Is there any regulatory material or  
12:14:00 **10** peer-reviewed material that says the opposite, that  
12:14:03 **11** TEM can tell you that if you identify a single fiber,  
12:14:07 **12** whether or not that particle is asbestiform or  
12:14:09 **13** nonasbestiform?  
12:14:11 **14** MS. O'DELL: Object to the form.  
12:14:13 **15** THE WITNESS: You're saying that it is not  
12:14:24 **16** asbestiform?  
12:14:25 **17** Q. (By Mr. Chachkes) So what I'm saying is,  
12:14:28 **18** is there any peer-reviewed literature or regulatory  
12:14:30 **19** material that confirms that TEM can tell you if you  
12:14:35 **20** identify a single fiber whether or not that particle  
12:14:38 **21** is asbestiform or nonasbestiform?  
12:14:42 **22** A. Well, there are -- yes. I mean, there are  
12:14:45 **23** a number of regulatory documents that say that it  
12:14:48 **24** can.  
12:14:48 **25** Q. Okay. Is 22262 one of those documents?  
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12:14:52 **1** A. I would have to -- again, I would want to  
12:14:55 **2** review 22262 again to look at that before I make that  
12:14:59 **3** answer.  
12:14:59 **4** Q. Well, you're using 22262 in this MDL case;  
12:15:04 **5** right?  
12:15:04 **6** A. Yeah. I just need to review it again.  
12:15:06 **7** Q. And you use TEM to identify whether a  
12:15:08 **8** single fiber is or is not asbestiform in this case;  
12:15:11 **9** right?  
12:15:11 **10** MS. O'DELL: Object to the form.  
12:15:12 **11** THE WITNESS: Yes.  
12:15:12 **12** Q. (By Mr. Chachkes) And that was pursuant  
12:15:13 **13** to 22262; correct?  
12:15:15 **14** A. Well, no, it was not just the 22262.  
12:15:18 **15** There were the other methods that were there, too.  
12:15:21 **16** Q. Okay.  
12:15:21 **17** A. Yeah.  
12:15:21 **18** Q. Did you follow the 22262 protocol for TEM?  
12:15:25 **19** A. To my knowledge, we did. And that also  
12:15:31 **20** is -- is also the same type of protocol that is in  
12:15:34 **21** the ASTM and also the EPA methods. So yeah.  
12:15:39 **22** Q. Does 22262 expressly say you can use TEM  
12:15:43 **23** to identify whether or not a particle is asbestiform  
12:15:47 **24** or nonasbestiform?  
12:15:49 **25** A. Again, I would like to review that just to  
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12:15:53 **1** be able to verify that it says -- actually says that.  
12:15:58 **2** Q. You were involved in many more reports  
12:16:19 **3** concerning J&J talc other than the MDL reports;  
12:16:23 **4** right?  
12:16:24 **5** MS. O'DELL: Object to the form.  
12:16:25 **6** THE WITNESS: Some other reports.  
12:16:27 **7** Q. (By Mr. Chachkes) So those were bottles  
12:16:27 **8** that were not -- those are different bottles, not the  
12:16:29 **9** MDL bottles?  
12:16:30 **10** MS. O'DELL: Object to the form.  
12:16:31 **11** THE WITNESS: They may have been, yes.  
12:16:32 **12** Q. (By Mr. Chachkes) You didn't issue any  
12:16:34 **13** other reports on the bottles at issue in this case,  
12:16:37 **14** have you?  
12:16:38 **15** MS. O'DELL: Object to the form.  
12:16:39 **16** THE WITNESS: Again, I don't recall.  
12:16:42 **17** Q. (By Mr. Chachkes) Are you aware that in  
12:16:46 **18** the old reports the majority of particles you  
12:16:50 **19** identified were fibers, and in this MDL the majority  
12:16:53 **20** of particles you identified were bundles; are you  
12:16:56 **21** aware of that?  
12:16:57 **22** A. I'd have to look back at the reports to  
12:16:59 **23** make that conclusion.  
12:17:01 **24** Q. Okay. Given that the old reports and the  
12:17:07 **25** new reports are both on J&J bottles, would you expect  
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12:17:11 **1** the same fiber-to-bundle ratio in the two separate  
12:17:16 **2** sets of reports?  
12:17:17 **3** MS. O'DELL: Object to form.  
12:17:18 **4** THE WITNESS: Not necessarily.  
12:17:18 **5** Q. (By Mr. Chachkes) Why not?  
12:17:19 **6** A. You get variation depending upon where the  
12:17:22 **7** material was mined and combined.  
12:17:25 **8** Q. For a -- if you isolate a single mine,  
12:17:30 **9** let's say, just Vermont --  
12:17:31 **10** A. Okay.  
12:17:31 **11** Q. -- would you expect the old reports, the  
12:17:35 **12** fiber-to-bundle ratio, to match the MDL report?  
12:17:38 **13** MS. O'DELL: Object to the form.  
12:17:39 **14** THE WITNESS: I would expect that they may  
12:17:47 **15** follow the same kinds of trends, you know, as  
12:17:51 **16** far as aspect ratio, that type of thing, yeah.  
12:17:53 **17** Q. (By Mr. Chachkes) But what about the  
12:17:55 **18** fiber-to-bundle ratio?  
12:17:56 **19** A. Again, I'd have to look at that. I can't  
12:17:59 **20** make a conclusion on that without looking at it.  
12:18:01 **21** Q. Okay. So sitting here today you can't  
12:18:05 **22** tell me if you would expect a certain degree of  
12:18:08 **23** reproducibility for the Vermont mine bottles from the  
12:18:12 **24** old reports as compared to the MDL bottles in this  
12:18:14 **25** report?  
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12:18:14 **1** MS. O'DELL: Object to the form.  
12:18:16 **2** THE WITNESS: Could you just restate that?  
12:18:27 **3** MR. CHACHKES: Do you mind reading that  
12:18:29 **4** back.  
12:18:29 **5** THE WITNESS: I know she can read it back,  
12:18:31 **6** but can you restate it another way?  
12:18:32 **7** Q. (By Mr. Chachkes) It's going to be read  
12:18:33 **8** back. Sorry.  
12:18:34 **9** MS. O'DELL: And if you still need that  
12:18:36 **10** question rephrased, you may --  
12:18:37 **11** THE WITNESS: That would be nice.  
12:18:38 **12** MS. O'DELL: You may ask that.  
12:18:40 **13** THE WITNESS: I'd like it to be rephrased.  
12:18:42 **14** MR. CHACHKES: As long as we keep talking,  
12:18:44 **15** she keeps typing.  
12:18:48 **16** (The record was read by the reporter.)  
12:19:12 **17** MS. O'DELL: Object to the form.  
12:19:14 **18** THE WITNESS: Rephrase.  
12:19:15 **19** Q. (By Mr. Chachkes) Would you expect that  
12:19:18 **20** your fiber-to-bundle ratio for the Vermont samples  
12:19:22 **21** from your old reports would be reproducible in  
12:19:29 **22** analyzing another set of bottles like the set of  
12:19:32 **23** bottles in the MDL?  
12:19:33 **24** MS. O'DELL: Object to the form.  
12:19:36 **25** Q. (By Mr. Chachkes) From the same mine?  
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12:19:37 **1** MS. O'DELL: Object to the form.  
12:19:38 **2** THE WITNESS: You know, I'm not a  
12:19:39 **3** geologist. But once again, the -- you would  
12:19:45 **4** have -- I would expect some variation. I would  
12:19:48 **5** expect some variation.  
12:19:49 **6** Q. (By Mr. Chachkes) When you say some  
12:19:50 **7** variation, can you quantify?  
12:19:51 **8** A. No. No. But I would expect because the  
12:19:55 **9** materials out of the ground are, you know --  
12:19:59 **10** depending upon the way they have been mixed, ground,  
12:20:02 **11** mined, all of that, you could have some variation in  
12:20:06 **12** that. Whether they were using a specific kind of  
12:20:09 **13** flotation process at one time versus another, all of  
12:20:12 **14** that kind of thing, you could get some variation.  
12:20:15 **15** Q. Okay. Is it your position that the  
12:20:19 **16** modified Blount TEM method you employed in your  
12:20:24 **17** March 2018 report is materially identical to ISO  
12:20:28 **18** 22262?  
12:20:29 **19** A. It is substantially the same.  
12:20:35 **20** Q. Is it materially the same?  
12:20:36 **21** A. Substantially the same. If you're saying  
12:20:39 **22** exactly the same, is that what you're asking?  
12:20:41 **23** Q. Well, let's do that. Is it exactly the  
12:20:44 **24** same?  
12:20:44 **25** A. Okay. I'd say substantially the same.  
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12:20:46 **1** Q. Okay. What degree do they differ?  
 12:20:50 **2** What ways do they differ?  
 12:20:50 **3** A. **There may be some variation, slight**  
 12:20:52 **4 variation in the densities, the heavy density liquid.**  
 12:20:55 **5** Q. Any other variation?  
 12:20:56 **6** A. **I can't think of any right off the bat.**  
 12:20:59 **7** Q. What's the average width of a tremolite  
 12:21:02 **8** fiber under TEM?  
 12:21:03 **9** A. **That varies depending on the size.**  
 12:21:05 **10** Q. And when you say depending on the size,  
 12:21:09 **11** what do you mean by that?  
 12:21:10 **12** A. **Well, I mean, it depends. It varies. It**  
 12:21:12 **13 can be 1/10 of a micron and up.**  
 12:21:14 **14** Q. So there's no -- in the published  
 12:21:21 **15** literature there's no average width of a tremolite  
 12:21:22 **16** fiber?  
 12:21:23 **17** MS. O'DELL: Object to the form.  
 12:21:24 **18** THE WITNESS: Oh, gosh. I don't know.  
 12:21:32 **19** There may be. But as far as there being an  
 12:21:36 **20** arrange width, again, it depends on how it's  
 12:21:38 **21** been mined and milled and processed.  
 12:21:41 **22** Q. (By Mr. Chachkes) Is there an average  
 12:21:42 **23** width of an anthophyllite fiber under TEM?  
 12:21:44 **24** A. **Same answer.**  
 12:21:45 **25** Q. What's the largest width an anthophyllite  
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12:21:48 **1** particle can have and still be characterized as a  
 12:21:51 **2** fiber under a TEM?  
 12:21:52 **3** A. **As far -- as long as there are bundled**  
 12:21:59 **4 fibrils in there, you know, it could be pretty large.**  
 12:22:03 **5** Q. Well, the question's really what's the  
 12:22:05 **6** largest width an anthophyllite particle can have and  
 12:22:08 **7** still be characterized as a fiber?  
 12:22:10 **8** A. **Well, if it has the aspect ratio, it will**  
 12:22:13 **9 still be -- it can be pretty large. It will still be**  
 12:22:15 **10 considered as a fiber by TEM.**  
 12:22:17 **11** Q. Okay. And so you don't have an upper  
 12:22:19 **12** boundary by which you'll no longer say that's an  
 12:22:23 **13** anthophyllite fiber?  
 12:22:25 **14** MS. O'DELL: Object to the form.  
 12:22:26 **15** Q. (By Mr. Chachkes) The width, I'm talking  
 12:22:27 **16** about.  
 12:22:27 **17** A. **On a width. Well, again, it's got to meet**  
 12:22:30 **18 the aspect ratio.**  
 12:22:31 **19** Q. But any time it meets the aspect ratio, it  
 12:22:34 **20** doesn't matter how wide it is, you can still  
 12:22:37 **21** characterize it as an anthophyllite particle?  
 12:22:38 **22** A. **Well, I mean, when you go from the TEM to**  
 12:22:41 **23 the PLM scale, you're going orders of magnitude in**  
 12:22:44 **24 size, and these are called fibrils. So, you know,**  
 12:22:47 **25 they can be pretty darn large.**  
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12:22:49 **1** Q. What's the largest width a tremolite  
 12:22:52 **2** particle can have and still be characterized as a  
 12:22:56 **3** fiber under TEM? Same answer?  
 12:22:58 **4** A. **Yeah.**  
 12:22:58 **5** Q. Okay. Are all of the fibers that you've  
 12:23:05 **6** identified in your reports as asbestos or asbestiform  
 12:23:11 **7** formed in the fibrous crystalline habit?  
 12:23:14 **8** A. **Originally, you know, looking at the**  
 12:23:18 **9 structures, we get into that question of them being**  
 12:23:22 **10 formed in a crystalline habit. So that is a growth**  
 12:23:29 **11 mode for the production of the fibrils; but also, if**  
 12:23:34 **12 you -- how do you want to say it?**  
 12:23:41 **13** **If massive tremolite, for instance, is**  
 12:23:46 **14 milled a certain way, it can break in cleavage planes**  
 12:23:51 **15 that will make it into the fibrils that are, you**  
 12:23:56 **16 know, regulated type fibrils. Sure, you'll get**  
 12:23:59 **17 cleavage fragments, ones that appear triangular and,**  
 12:24:04 **18 you know, different kinds of shapes, but you will**  
 12:24:06 **19 produce these other kind of fibrils too that will**  
 12:24:09 **20 meet the definition.**  
 12:24:10 **21** Q. Okay. So a mineral that has a  
 12:24:18 **22** nonregulated and a regulated version can be connected  
 12:24:23 **23** in the cleavage plane but can be broken up such that  
 12:24:27 **24** it would become in your mind a regulated asbestos  
 12:24:29 **25** fiber?  
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12:24:30 **1** MS. O'DELL: Object to the form.  
 12:24:31 **2** THE WITNESS: Well, this does happen.  
 12:24:35 **3** This does happen. And there's a recent  
 12:24:40 **4** publication for -- I think it's amosite,  
 12:24:45 **5** grunerite, that shows this happens.  
 12:24:48 **6** Q. (By Mr. Chachkes) Okay. What's the  
 12:24:49 **7** publication you're citing now?  
 12:24:50 **8** A. **It's a 2019. It's a recent publication.**  
 12:24:54 **9** Q. Can you tell me the name of it?  
 12:24:55 **10** A. **It's by Germine and Puffer, I believe it**  
 12:24:59 **11 is.**  
 12:25:00 **12** Q. And you don't cite that in your report, do  
 12:25:02 **13** you?  
 12:25:02 **14** A. **Excuse me?**  
 12:25:03 **15** Q. You don't cite that in your report --  
 12:25:04 **16** A. **No, no. That's a recent publication.**  
 12:25:06 **17** Q. And who are Germain and Puffer?  
 12:25:09 **18** A. **They're a couple of researchers, I**  
 12:25:11 **19 believe, at UC Cal.**  
 12:25:12 **20** Q. Do you know who funded their research?  
 12:25:15 **21** A. **I think the university did.**  
 12:25:16 **22** Q. Okay. So am I correct in understanding  
 12:25:20 **23** your testimony that not everything you've identified  
 12:25:23 **24** as asbestos and asbestiform in your report was formed  
 12:25:28 **25** in the -- necessarily formed in the crystalline  
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12:25:31 **1** habit?

12:25:31 **2** MS. O'DELL: Object to the form.

12:25:33 **3** THE WITNESS: Well, again, it's not part

12:25:34 **4** of the definition, that it be in the crystalline

12:25:37 **5** habit. The definition has the parameters that

12:25:40 **6** we discussed already. If it is in that form,

12:25:45 **7** it's going to be classified like that.

12:25:48 **8** Q. (By Mr. Chachkes) If something is formed

12:25:53 **9** in the crystalline habit and has an aspect ratio

12:25:56 **10** under 5-to-1, would you call it regulated asbestos?

12:25:59 **11** A. **Well, if it's 3-to-1, OSHA would.**

12:26:02 **12** Q. If something was formed in the fibrous

12:26:04 **13** crystalline habit and was in a 2-to-1 aspect ratio,

12:26:08 **14** would you call it asbestos?

12:26:10 **15** A. **That wouldn't meet the definition.**

12:26:12 **16** Q. Okay. Does MAS have a protocol in place

12:26:18 **17** for describing the dimensions of fibers under a TEM?

12:26:22 **18** A. **Yes.**

12:26:22 **19** Q. Is it written?

12:26:24 **20** A. **Yes, it's in accordance with the standard**

12:26:26 **21** **methods, all of these standard methods we've**

12:26:28 **22** **discussed.**

12:26:29 **23** Q. Okay. So your written protocol for

12:26:37 **24** identifying what's asbestos or not under a TEM is

12:26:39 **25** just basically a repeat of the regulations?

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12:26:41 **1** A. **Yes.**

12:26:42 **2** Q. Okay. No change whatsoever --

12:26:44 **3** A. **Well, I mean, it's -- it's in accordance**

12:26:49 **4** **with the regulation.**

12:26:50 **5** Q. Okay. What form is it in? Is it like a

12:26:55 **6** piece of paper on a wall so TEM scientists can look

12:26:57 **7** at it? Is it an email? What it is?

12:26:59 **8** MS. O'DELL: Object to the form.

12:27:00 **9** THE WITNESS: It's a protocol. We have a

12:27:02 **10** protocol that the analysts have to abide by.

12:27:05 **11** Q. (By Mr. Chachkes) Just physically, is it

12:27:07 **12** a piece of paper that analysts memorize --

12:27:10 **13** A. **It's a document, yeah.**

12:27:11 **14** Q. Okay. Do the analysts have it near

12:27:13 **15** them --

12:27:14 **16** A. **It's a standard operating procedure we**

12:27:16 **17** **have.**

12:27:16 **18** Q. Okay. So we would ask that that be

12:27:18 **19** produced.

12:27:19 **20** Does MAS have a protocol in place for

12:27:22 **21** describing the dimensions of fibers under TEM, or is

12:27:26 **22** that the same answer?

12:27:27 **23** A. **Same answer.**

12:27:27 **24** Q. Same, okay.

12:27:33 **25** Is there additional data concerning the

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12:27:35 **1** samples you've reported on for TEM that is somewhere

12:27:39 **2** in your laboratory, like an electronic file that's

12:27:41 **3** not been produced, not in paper form for us?

12:27:44 **4** A. **Not that I know of, no.**

12:27:45 **5** Q. Was there any data generated in connection

12:27:48 **6** with the TEM analysis in this case that was thrown

12:27:53 **7** away or deleted?

12:27:54 **8** A. **No.**

12:27:54 **9** Q. I'm moving on to a new topic. It's

12:27:59 **10** 12:30ish. I'm happy to keep going. It would be a

12:28:02 **11** good breaking point but --

12:28:04 **12** A. **I'm good to go. We can go.**

12:28:06 **13** Q. Okay. I mean, we're going to have a lunch

12:28:08 **14** and we're going to come back, so it's not like we're

12:28:11 **15** going to finish before lunch.

12:28:13 **16** A. **Oh. Oh, well.**

12:28:13 **17** MS. O'DELL: It's up to you, Doctor. If

12:28:15 **18** you want to go a little longer --

12:28:16 **19** THE WITNESS: We can take a break if you

12:28:16 **20** want to take a break.

12:28:17 **21** MS. PARFITT: It's up to you.

12:28:18 **22** MS. O'DELL: It's really up to you.

12:28:21 **23** THE WITNESS: Okay. That's good. Break.

12:28:22 **24** (Lunch recess from 12:28 p.m. to 1:38 p.m.)

13:38:49 **25** Q. (By Mr. Chachkes) Good afternoon.

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13:39:27 **1** A. **Good afternoon.**

13:39:27 **2** Q. Am I correct that you are not going to

13:39:30 **3** testify about the PLM results in your report?

13:39:34 **4** A. **That's correct.**

13:39:34 **5** Q. Okay. I'll skip PLM questioning because

13:39:38 **6** of that.

13:39:38 **7** Am I correct that you are not going to

13:39:40 **8** testify about J3 results in your report?

13:39:43 **9** A. **Dr. Longo will testify on that.**

13:39:45 **10** Q. Okay. Not you; right?

13:39:47 **11** A. **Correct.**

13:39:47 **12** Q. Okay. So I'm going to skip questions on

13:39:50 **13** J3.

13:39:51 **14** Let me just ask one question, though. Why

13:39:54 **15** did MAS use J3?

13:39:57 **16** A. **MAS used J3 to do XRD analysis. MAS**

13:40:03 **17** **doesn't have XRD capabilities.**

13:40:05 **18** Q. But they did some other things beyond XRD;

13:40:08 **19** right?

13:40:09 **20** A. **J3?**

13:40:09 **21** Q. Yeah.

13:40:09 **22** A. **Yes.**

13:40:10 **23** Q. Okay. Why did they do those things?

13:40:13 **24** A. **To my knowledge, it was to help verify**

13:40:17 **25** **results.**

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13:40:18 **1 Q.** Verify results of things that were  
13:40:20 **2** otherwise being duplicated by MAS?  
13:40:23 **3 A.** **There may have been some of that, yes.**  
13:40:25 **4 Again, if you would ask Dr. Longo about that, please.**  
13:40:27 **5 Q.** Okay. What's an example of silicate, some  
13:40:32 **6** silicate materials?  
13:40:33 **7 A.** **Well, a whole group of phyllosilicates are**  
13:40:39 **8 clay, clay minerals. There's lots of silicates. I**  
13:40:43 **9 mean, the earth's crust is covered with silicates.**  
13:40:46 **10 Q.** Is talc a silicate?  
13:40:47 **11 A.** **Yes.**  
13:40:47 **12 Q.** Are you aware that there's different  
13:40:50 **13** grades of talc?  
13:40:50 **14 A.** **Yes.**  
13:40:51 **15 Q.** What are those grades?  
13:40:54 **16 A.** **Well, they vary by composition, color,**  
13:40:57 **17 size, particle size, that type of thing.**  
13:40:59 **18 Q.** Is talc an asbestiform mineral?  
13:41:05 **19 A.** **Fibrous talc could be described as an**  
13:41:10 **20 asbestiform, yes.**  
13:41:11 **21 Q.** Are asbestiform minerals silicates?  
13:41:15 **22 A.** **Yes.**  
13:41:16 **23 Q.** Do you know how many amphibole mineral  
13:41:23 **24** species there are?  
13:41:24 **25 A.** **Quite a few.**

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13:41:24 **1 Q.** Do you have an estimate?  
13:41:25 **2 A.** **Not right off the top of my head. I bet**  
13:41:29 **3 it's many.**  
13:41:30 **4 Q.** Like more than 10?  
13:41:31 **5 A.** **Yes.**  
13:41:31 **6 Q.** More than 30?  
13:41:33 **7 A.** **Yes.**  
13:41:33 **8 Q.** When it comes time to give analysts in  
13:41:40 **9** your labs samples of J&J talc to analyze, do you  
13:41:44 **10** distribute them completely randomly?  
13:41:47 **11** MS. O'DELL: Object to the form.  
13:41:48 **12** THE WITNESS: Again, you would have to ask  
13:41:49 **13** Dr. Longo about that. The TEM manager is the  
13:41:54 **14** one who distributes the samples once they come  
13:41:57 **15** in.  
13:41:57 **16 Q.** (By Mr. Chachkes) Okay. Would it be  
13:41:59 **17** better to distribute them randomly?  
13:42:01 **18** MS. O'DELL: Object to the form.  
13:42:03 **19** THE WITNESS: Well, I mean, we're going to  
13:42:07 **20** analyze the samples that we receive, so, you  
13:42:11 **21** know, random or not, it wouldn't make any  
13:42:14 **22** difference.  
13:42:14 **23 Q.** (By Mr. Chachkes) Would you expect two  
13:42:21 **24** analysts to identify the same asbestos concentration  
13:42:24 **25** from the same bottle of J&J talc?

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13:42:27 **1 A.** **The answer to that is yes, I would expect**  
13:42:35 **2 that.**  
13:42:36 **3 Q.** And is that empirically what you've been  
13:42:40 **4** seeing?  
13:42:41 **5** MS. O'DELL: Object to the form.  
13:42:42 **6** THE WITNESS: Again, I don't know which  
13:42:44 **7** ones you're referring to here. But from a  
13:42:49 **8** quality standpoint, they do see the same things.  
13:42:52 **9 Q.** (By Mr. Chachkes) Okay. If one --  
13:42:54 **10** hypothetically, if one analyst looked at a bottle and  
13:42:57 **11** saw 10,000 fibers per gram and another analyst looked  
13:43:00 **12** at the same bottle and got a nondetect, would that be  
13:43:03 **13** within the margin of error?  
13:43:06 **14** MS. O'DELL: Object to the form.  
13:43:10 **15** THE WITNESS: That would depend on the  
13:43:12 **16** statistics that we were using, whether -- that  
13:43:17 **17** would depend.  
13:43:19 **18 Q.** (By Mr. Chachkes) Depend on what?  
13:43:20 **19 A.** **It would depend on the number of**  
13:43:22 **20 structures that they saw.**  
13:43:23 **21 Q.** Okay. Well, you know how you determine  
13:43:27 **22** structures; correct?  
13:43:28 **23 A.** **Yes. Yes.**  
13:43:28 **24 Q.** And you know the number of structures you  
13:43:30 **25** need to extrapolate to 10,000 per gram?

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13:43:33 **1 A.** **Well, again, that varies. That can vary,**  
13:43:39 **2 as I say, depending on what the detection limit is.**  
13:43:42 **3 So when you're saying a certain number per gram,**  
13:43:48 **4 that's based on it being above a certain detection**  
13:43:51 **5 limit. So you may want to ask the question again to**  
13:43:55 **6 clarify a little more.**  
13:43:55 **7 Q.** Well, let's say one analyst analyzed an  
13:44:02 **8** aliquot from a bottle and saw 10 fibers and another  
13:44:05 **9** analyst analyzed an aliquot and didn't detect any  
13:44:08 **10** fibers. Would that be within the margin of error?  
13:44:11 **11 A.** **No.**  
13:44:11 **12 Q.** Why not?  
13:44:12 **13 A.** **That would be outside the margin of error.**  
13:44:14 **14 Q.** Can you narrow for me what that margin of  
13:44:17 **15** error is?  
13:44:18 **16 A.** **Well, in our laboratory the coefficient of**  
13:44:23 **17 variation between analysts is around I think 5 or**  
13:44:27 **18 7 percent, something like that. So I would expect**  
13:44:35 **19 the variation to be not much more than that. Maybe**  
13:44:40 **20 1 fiber difference, something like that, depending**  
13:44:42 **21 upon how many fibers they found.**  
13:44:44 **22 Q.** When you say coefficient of variation,  
13:44:46 **23** you're referring to the coefficient of variation  
13:44:49 **24** study that you all did?  
13:44:49 **25 A.** **Yes. Yes.**

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13:44:50 **1** Q. And were you part of that?  
 13:44:51 **2** A. Yes.  
 13:44:51 **3** Q. What about would the same coefficient of  
 13:45:00 **4** variation apply to the difference in type of asbestos  
 13:45:06 **5** that the analysts are finding?  
 13:45:08 **6** A. It should. Yes.  
 13:45:10 **7** Q. Okay. So you would expect that the ratio  
 13:45:12 **8** of tremolite to anthophyllite in a bottle should  
 13:45:17 **9** remain relatively constant amongst different analysts  
 13:45:20 **10** within 5 to 7 percent?  
 13:45:21 **11** A. Yes.  
 13:45:21 **12** Q. If the numbers were completely out of  
 13:45:29 **13** whack with that, let's say there was 30 percent  
 13:45:32 **14** difference, would you believe you need to rerun the  
 13:45:35 **15** results, or would you average the two? What would be  
 13:45:38 **16** your reaction?  
 13:45:39 **17** MS. O'DELL: Object to the form.  
 13:45:40 **18** THE WITNESS: Well, if the analysts  
 13:45:44 **19** weren't seeing the same thing -- I mean, this is  
 13:45:48 **20** the way we run the QC. For instance, if they  
 13:45:52 **21** haven't found -- if you put them in the same  
 13:45:56 **22** grid square and they haven't found the same  
 13:45:59 **23** number of structures there, then you  
 13:46:03 **24** typically -- we go back, we look at what was  
 13:46:05 **25** there, we sit down with the analyst and try to  
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13:46:08 **1** understand why there is a difference like that,  
 13:46:11 **2** and then we resolve the difference at that  
 13:46:14 **3** point.  
 13:46:14 **4** Now, that's the way the process typically  
 13:46:17 **5** works.  
 13:46:17 **6** Q. (By Mr. Chachkes) Was your coefficient of  
 13:46:19 **7** variation study analysts looking at the same grid  
 13:46:22 **8** square?  
 13:46:22 **9** A. Yes.  
 13:46:22 **10** Q. Okay. Let's do it in a completely  
 13:46:25 **11** different hypothetical.  
 13:46:25 **12** A. All right.  
 13:46:26 **13** Q. The two analysts in your lab take aliquots  
 13:46:29 **14** out of a bottle that are different, so they end up  
 13:46:31 **15** looking at different grid squares.  
 13:46:33 **16** A. Yes.  
 13:46:33 **17** Q. Would you expect the results to be the  
 13:46:35 **18** same?  
 13:46:36 **19** MS. O'DELL: Object to the form.  
 13:46:37 **20** THE WITNESS: If the sample was  
 13:46:41 **21** homogeneous, let's hypothetically say that it is  
 13:46:46 **22** completely homogeneous, then, yes, I would  
 13:46:48 **23** expect the same kinds of results.  
 13:46:50 **24** Q. (By Mr. Chachkes) Do you know whether or  
 13:46:51 **25** not bottles are homogeneous, samples are homogeneous?  
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13:46:56 **1** A. They should be because they're mixed prior  
 13:46:59 **2** to the actual analysis, you know, they're mixed in  
 13:47:02 **3** preparation, the sample is.  
 13:47:03 **4** Q. Wouldn't you expect greater variation when  
 13:47:06 **5** two analysts are looking at their own grids  
 13:47:12 **6** separately rather than comparing what they see under  
 13:47:15 **7** the same grid?  
 13:47:16 **8** MS. O'DELL: Object to the form.  
 13:47:17 **9** THE WITNESS: Yeah. That's a good  
 13:47:19 **10** question. We're not doing chemistry here.  
 13:47:23 **11** We're doing particle analysis. So in chemistry  
 13:47:26 **12** where you have something that is in, for  
 13:47:29 **13** instance, in solution, it's mixed in solution,  
 13:47:31 **14** it's dispersed in that solution by Brownian  
 13:47:37 **15** motion forces that keep it very random and  
 13:47:39 **16** mixed.  
 13:47:40 **17** Wherein a particle solution, if you want  
 13:47:44 **18** to call it that, you can have variation based on  
 13:47:46 **19** the particle size and a number of factors, but  
 13:47:50 **20** the objective is to make the samples as  
 13:47:53 **21** homogeneous as possible.  
 13:47:54 **22** So you would expect them, if they took a  
 13:47:56 **23** sample from the same bottle and they're both  
 13:47:58 **24** homogeneous, you should get close to the same  
 13:48:01 **25** answer.  
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13:48:01 **1** Q. (By Mr. Chachkes) Okay. In your  
 13:48:04 **2** experience do two of your analysts looking at the  
 13:48:06 **3** same exact grid identify the same bundle-to-fiber  
 13:48:11 **4** ratio?  
 13:48:12 **5** A. I would say that most of the time they do.  
 13:48:18 **6** There may be some slight variations in the size of  
 13:48:23 **7** the structure. It will be the same structure because  
 13:48:25 **8** you can see it in the images that they make, but they  
 13:48:30 **9** may have some slight variation in the size based on  
 13:48:33 **10** the microscope that's being used because a couple of  
 13:48:37 **11** the scopes we have have slightly different graticules  
 13:48:42 **12** in the scope so there may be a little difference in  
 13:48:45 **13** the length or the width, just a slight amount.  
 13:48:47 **14** Q. But generally speaking, you would expect  
 13:48:49 **15** two analysts in your laboratory looking at the same  
 13:48:51 **16** grid pattern to roughly identify the same  
 13:48:55 **17** fiber-to-bundle ratio?  
 13:48:56 **18** A. Yes.  
 13:48:58 **19** Q. Roughly speaking, you would expect two  
 13:49:00 **20** analysts looking at the same grid opening to --  
 13:49:08 **21** roughly speaking, you would expect two analysts  
 13:49:10 **22** looking at the same grid opening to identify the same  
 13:49:14 **23** asbestos type composition, like anthophyllite versus  
 13:49:17 **24** tremolite versus no detect?  
 13:49:20 **25** A. Yes.  
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13:49:20 **1** Q. Okay. And that's based on the coefficient  
13:49:22 **2** of variation study?  
13:49:23 **3** A. Yes, and also their training. So they're  
13:49:27 **4** well versed in this.  
13:49:28 **5** Q. Okay. You wouldn't know whether Lee Poye  
**6** would expect the same thing?  
**7** THE REPORTER: I'm sorry, you would or  
**8** wouldn't?  
13:49:39 **9** Q. (By Mr. Chachkes) You would not expect --  
13:49:40 **10** you would not know whether Lee Poye would say the  
13:49:41 **11** same thing --  
**12** MS. O'DELL: Object to the form.  
13:49:42 **13** Q. (By Mr. Chachkes) -- is that outside of  
13:49:43 **14** your knowledge?  
13:49:44 **15** MS. O'DELL: Excuse me, I didn't mean to  
13:49:46 **16** interrupt you. Are you finished?  
13:49:48 **17** Object to the form.  
13:49:49 **18** THE WITNESS: All right. Well, as being a  
13:49:54 **19** certified laboratory and having earned  
13:49:57 **20** protocols, I would expect that their analysts  
13:49:59 **21** would find the same kinds of things. There may  
13:50:03 **22** be some variation, but again, you know, there is  
13:50:10 **23** slight variation between laboratories.  
13:50:12 **24** Q. (By Mr. Chachkes) Okay. Did you ever  
13:50:13 **25** quantify the slight variation between laboratories?  
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13:50:16 **1** MS. O'DELL: Object to the form.  
13:50:17 **2** THE WITNESS: In this case, no. We did  
13:50:20 **3** see variation, and that's in the report. But  
13:50:25 **4** again, it doesn't change what has been found.  
13:50:30 **5** There were, I believe, a couple by TEM that we  
13:50:33 **6** weren't able to verify, so, you know, it does  
13:50:35 **7** happen.  
13:50:35 **8** Q. (By Mr. Chachkes) Would you --  
13:50:41 **9** A. But for the most part, we did agree.  
13:50:44 **10** Q. Okay. Let's compare -- let's talk about  
13:50:48 **11** on the one hand the non-MDL samples that you guys  
13:50:52 **12** have analyzed of J&J talc, and on the other hand MDL  
13:50:56 **13** samples of J&J talc.  
13:50:57 **14** Would you expect the results for, let's  
13:51:01 **15** say, 150 tests of the non-MDL samples to look roughly  
13:51:08 **16** like the 150 tests of the MDL samples?  
13:51:13 **17** MS. O'DELL: Objection to form. Without  
13:51:15 **18** limitation on time, et cetera? Product?  
13:51:19 **19** THE WITNESS: It's a hypothetical. But if  
13:51:23 **20** there -- I mean, if they're the same product  
13:51:26 **21** from the same lot, I would expect similar  
13:51:29 **22** results.  
13:51:29 **23** Q. (By Mr. Chachkes) What about without that  
13:51:33 **24** qualification, let's say we know they're from the  
13:51:36 **25** same mine but you know nothing else, would you expect  
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13:51:42 **1** the results from the non-MDL samples to look like the  
13:51:46 **2** MDL samples?  
13:51:47 **3** A. I mean, if they're splits of the same  
13:51:51 **4** sample or -- oh, they're different.  
13:51:51 **5** Q. They're different. So you understand that  
13:51:53 **6** the non-MDL samples are literally different bottles  
13:51:56 **7** than the MDL samples?  
13:51:58 **8** A. Yeah. I don't have an opinion on that. I  
13:52:04 **9** don't have an opinion. I'd have to think about that.  
13:52:06 **10** Q. Would you expect the type of asbestos  
13:52:08 **11** found to be roughly the same?  
13:52:11 **12** A. Same answer.  
13:52:12 **13** Q. Okay. No opinion?  
13:52:15 **14** A. Yeah, right.  
13:52:16 **15** Q. If you had an analyst who told you he had  
13:52:24 **16** a nondetect for asbestos in a bottle, a sample from a  
13:52:28 **17** bottle --  
13:52:28 **18** A. Yes.  
13:52:29 **19** Q. -- would you expect another analyst  
13:52:32 **20** separately on a different day analyzing that same  
13:52:35 **21** bottle to get a nondetect?  
13:52:38 **22** A. If the sample was prepared the same way  
13:52:47 **23** and the detection limit was the same, I would expect  
13:52:52 **24** similar results.  
13:52:53 **25** Q. Okay. That goes to the reproducibility of  
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13:52:58 **1** your --  
13:52:59 **2** A. Yeah.  
13:52:59 **3** Q. Okay. When you present -- what's more  
13:53:05 **4** accurate of a representation of what's in a bottle of  
13:53:09 **5** J&J talc, a single analysis or multiple analyses  
13:53:16 **6** separately averaged?  
13:53:18 **7** MS. O'DELL: Object to the form.  
13:53:19 **8** THE WITNESS: Let me put it in terms of  
13:53:28 **9** how FDA does their thing. A laboratory runs a  
13:53:35 **10** study to validate a method. That's the way it's  
13:53:39 **11** done. They will validate the method based on  
13:53:43 **12** accuracy, precision, reproducibility, stability,  
13:53:46 **13** all these different factors.  
13:53:48 **14** And when they're done with that, when  
13:53:51 **15** they're done with that validation study, now  
13:53:53 **16** they have a method that they will use that is  
13:53:56 **17** allowed to use one sample from that to get a  
13:54:00 **18** result. Because they validated their  
13:54:06 **19** methodology and are using a standard  
13:54:07 **20** methodology, that's what's allowed by FDA.  
13:54:11 **21** So I would expect one sample should be  
13:54:12 **22** fine. You can do more, you can average more,  
13:54:16 **23** but the one sample should be representative  
13:54:19 **24** based on the methodology.  
13:54:20 **25** Q. (By Mr. Chachkes) So my question was not  
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13:54:22 1 about adequacy or what follows regulatory methods.  
13:54:28 2 I'm just saying what would you personally believe to  
13:54:30 3 be more reliable, a single analysis from a bottle or  
13:54:36 4 multiple separate analyses from a bottle averaged?  
13:54:39 5 MS. O'DELL: Object to the form.  
13:54:40 6 THE WITNESS: I would say the single  
13:54:42 7 sample based on the methodology that we use that  
13:54:45 8 has been validated, published. A single sample  
13:54:50 9 should be fine.  
13:54:51 10 Q. (By Mr. Chachkes) Do you expect that the  
13:54:52 11 multiple samples' average would be precisely the  
13:54:55 12 same?  
13:54:56 13 A. **I don't know about --**  
13:54:57 14 MS. O'DELL: Object to form.  
13:54:58 15 THE WITNESS: -- precisely the same, but  
13:54:59 16 they should be very similar.  
13:55:01 17 Q. (By Mr. Chachkes) But you're not going to  
13:55:02 18 say that one's better in terms of a more accurate  
13:55:05 19 representation of what's in the bottle?  
13:55:07 20 MS. O'DELL: Object to the form.  
13:55:08 21 THE WITNESS: Well, now you've got an  
13:55:09 22 average. So you got an average of multiples,  
13:55:13 23 they should be very similar.  
13:55:14 24 If you take a single, you should get a  
13:55:17 25 representative that is close to the average, you  
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13:55:20 1 know, within one standard definition of the  
13:55:22 2 average. So that's what I would expect.  
13:55:24 3 Q. (By Mr. Chachkes) Okay.  
13:55:25 4 A. **And it's acceptable to have something**  
13:55:27 5 **within two to three standard deviations.**  
13:55:30 6 Q. I'm just asking a question about which  
13:55:31 7 would be more representative of what objectively is  
13:55:34 8 in the bottle, one analysis or multiple analyses  
13:55:39 9 averaged, which would be more representative?  
13:55:41 10 MS. O'DELL: Object to the form.  
13:55:42 11 THE WITNESS: Well, the single can be  
13:55:43 12 representative, absolutely.  
13:55:44 13 Q. (By Mr. Chachkes) And --  
13:55:45 14 A. **I know you're saying more, I get that.**  
15 Q. Yeah.  
13:55:47 16 A. **I understand that.**  
13:55:47 17 Q. Can you answer the question?  
13:55:48 18 A. **Sure.**  
13:55:48 19 Q. Which is more representative?  
13:55:49 20 A. **Which is more representative?**  
13:55:51 21 Q. Yeah.  
13:55:51 22 A. **Any of those three, if there were three of**  
13:55:54 23 **them, would be representative. Any of them.**  
13:55:55 24 Q. Okay. So if someone presented you a data  
13:55:59 25 for one analysis of the asbestos concentration for a  
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13:56:04 1 bottle and someone else presented you, let's say, ten  
13:56:07 2 different analyses, separate analyses averaged, you  
13:56:10 3 would say those are equally representative, the  
13:56:13 4 standard definitions, the margin of error, same for  
13:56:16 5 both?  
13:56:17 6 MS. O'DELL: Object to the form.  
13:56:18 7 THE WITNESS: Well, the ten will give you  
13:56:21 8 an average with a standard deviation, and if  
13:56:23 9 that single one falls within that, it's still  
13:56:27 10 adequate analysis of that and it's still  
13:56:30 11 acceptable.  
13:56:30 12 Q. (By Mr. Chachkes) The question is would  
13:56:32 13 those two examples have the same standard deviations  
13:56:35 14 and margins of error?  
13:56:37 15 MS. O'DELL: Object to the form.  
13:56:38 16 THE WITNESS: Well, they won't. Of  
13:56:39 17 course, you've got one that's got ten and one  
13:56:41 18 has one. But I'm going by a method that's been  
13:56:44 19 validated as accepted as a standard method. You  
13:56:48 20 should be able to take one sample and it be  
13:56:50 21 representative, yes.  
13:56:50 22 Q. (By Mr. Chachkes) When you say they won't  
13:56:51 23 have the same margin of error, the average of ten  
13:56:54 24 would have a smaller margin of error; correct?  
13:56:57 25 A. **Not --**  
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13:56:57 1 MS. O'DELL: Object to the form.  
13:56:59 2 THE WITNESS: -- necessarily. It could.  
13:57:00 3 It could. Yep.  
13:57:01 4 Q. (By Mr. Chachkes) Okay. In what instance  
13:57:01 5 would the ten done by the exact same procedure have a  
13:57:04 6 larger margin of error when averaged than the one?  
13:57:07 7 A. **Well, the one's not going to -- the one is**  
13:57:10 8 **the one. So what I'm saying is the one would fall**  
13:57:14 9 **within the group of ten, so it would be**  
13:57:16 10 **representative.**  
13:57:17 11 Q. I'm not asking questions about  
13:57:18 12 representative in any way whatsoever.  
13:57:20 13 A. **I know. I'm trying to answer from a**  
13:57:21 14 **scientific point of view.**  
13:57:23 15 Q. Yeah. So if you want to be a scientist  
13:57:25 16 about it, I would appreciate you under -- like,  
13:57:27 17 listen to the words I'm saying, okay? I'm talking  
13:57:29 18 about the standard deviations, not what's  
13:57:32 19 representative, just the math of standard deviations.  
13:57:34 20 A. **Well, there's no --**  
13:57:34 21 MS. O'DELL: Object --  
13:57:36 22 THE WITNESS: -- no standard deviation in  
13:57:38 23 one. So you're trying to compare ten to one and  
13:57:41 24 say standard deviation, and it's not working.  
13:57:43 25 Q. (By Mr. Chachkes) Okay. How about  
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13:57:43 **1** comparing two averaged and 100 averaged --  
13:57:46 **2 A. Well, now all of a sudden now we're at two**  
13:57:51 **3 and ten instead of one and ten.**  
13:57:53 **4 Q. 100.**  
13:57:54 **5 A. Or 100. Yeah, no, I'm talking about you**  
13:57:55 **6 want to know about one, and I'm telling you one is**  
13:57:57 **7 representative. That's my opinion.**  
13:57:58 **8 Q. Just asking about standard deviations. Is**  
13:58:01 **9 it possible to talk about the math of standard**  
**10 deviations without saying the word representative?**  
**11 MS. O'DELL: Object to the form.**  
**12 THE REPORTER: Wait. I'm sorry, say it**  
**13 again, please.**  
13:58:07 **14 Q. (By Mr. Chachkes) Is it possible to talk**  
13:58:08 **15 about the math of standard deviations without using**  
13:58:11 **16 the word representative?**  
13:58:12 **17 MS. O'DELL: Object to the form.**  
13:58:13 **18 THE WITNESS: I'm not quite sure what**  
13:58:18 **19 you're getting at.**  
13:58:18 **20 Q. (By Mr. Chachkes) Okay. Every time I ask**  
13:58:21 **21 you about standard deviations, you say**  
13:58:23 **22 representative. I'm just talking about the math. Do**  
13:58:25 **23 you understand that?**  
13:58:26 **24 A. Yeah, but --**  
13:58:26 **25 MS. O'DELL: Object to the form.**  
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13:58:27 **1 THE WITNESS: -- I mean as far as -- I**  
13:58:31 **2 mean, if you read back some of what I said, how**  
13:58:34 **3 many times did I say representative with that?**  
13:58:36 **4 Was it quite a few?**  
13:58:37 **5 Q. (By Mr. Chachkes) It's a bit of a burden**  
13:58:39 **6 to put on the reporter.**  
13:58:40 **7 A. I know, but I'm like I don't recall it**  
13:58:41 **8 being so much a part of the standard deviation, you**  
13:58:44 **9 know, answer.**  
13:58:45 **10 Q. Okay. Let me see if you can answer this**  
13:58:46 **11 question without using the words representative or**  
13:58:49 **12 what's regulatory or -- just about a question about**  
13:58:52 **13 standard deviation. Listen to the question.**  
13:58:54 **14 MS. O'DELL: You may answer it any way you**  
13:58:56 **15 choose.**  
13:58:56 **16 THE WITNESS: I know. I mean, when I say**  
13:58:59 **17 representative, I'm talking about that sample**  
13:59:01 **18 being representative of the bottle.**  
13:59:03 **19 Q. (By Mr. Chachkes) Okay.**  
13:59:04 **20 A. That's what I'm talking about**  
13:59:05 **21 representative. I didn't say it was representative**  
13:59:07 **22 about standard deviation.**  
**23 Q. Okay.**  
13:59:08 **24 A. I said it's representative of what is in**  
13:59:09 **25 the bottle.**  
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13:59:10 **1 Q. This is a new, independent question.**  
13:59:12 **2 A. Okay.**  
13:59:12 **3 Q. And --**  
13:59:13 **4 A. New question.**  
13:59:14 **5 Q. You've got two samples from one -- a**  
13:59:19 **6 bottle?**  
13:59:19 **7 A. Yes.**  
13:59:19 **8 Q. Separately analyzed?**  
13:59:21 **9 A. Okay.**  
13:59:21 **10 Q. Average them on one hand?**  
13:59:23 **11 A. Yes.**  
13:59:23 **12 Q. You've got 100 samples from that same**  
13:59:25 **13 bottle average -- and separately analyze those and**  
13:59:28 **14 average them, which is going to have a higher**  
13:59:31 **15 standard deviation?**  
13:59:33 **16 MS. O'DELL: Object to the form.**  
13:59:34 **17 THE WITNESS: I can't tell you that.**  
13:59:35 **18 Q. (By Mr. Chachkes) Okay. Why can't you**  
13:59:36 **19 tell me that?**  
13:59:36 **20 A. Because I don't have the numbers. I don't**  
13:59:39 **21 have any numbers to work with.**  
13:59:40 **22 Q. In what world is this hypothetical such**  
13:59:44 **23 that the standard deviation is smaller for the two on**  
13:59:48 **24 average than the 100 on average?**  
13:59:49 **25 MS. O'DELL: Object to the form.**  
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13:59:50 **1 THE WITNESS: It could be the same.**  
13:59:53 **2 Standard deviation could be exactly the same.**  
13:59:54 **3 Q. (By Mr. Chachkes) Okay. Is there any**  
13:59:55 **4 situation where the two is going to have a lower**  
13:59:57 **5 deviation?**  
13:59:57 **6 A. A lower standard deviation?**  
13:59:59 **7 Q. Right.**  
14:00:00 **8 A. The two have a lower standard deviation?**  
14:00:07 **9 Q. Right.**  
14:00:07 **10 A. Possibly.**  
**11 Q. How?**  
14:00:07 **12 A. Well, it depends on how close the results**  
14:00:09 **13 are. The closer they are, the smaller the standard**  
14:00:11 **14 deviation.**  
14:00:11 **15 Q. Okay. That's your opinion of how standard**  
14:00:13 **16 deviation is calculated?**  
14:00:15 **17 MS. O'DELL: Object to the form.**  
14:00:15 **18 THE WITNESS: We didn't talk about how**  
14:00:17 **19 it's calculated. There's a formula for that.**  
14:00:19 **20 Q. (By Mr. Chachkes) Okay.**  
14:00:19 **21 A. Okay. But the closer the values are to**  
14:00:25 **22 each other, the smaller the standard deviation's**  
14:00:29 **23 going to be.**  
14:00:29 **24 Q. Did your analysts use the point counting**  
14:00:32 **25 method?**  
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14:00:32 **1 A. Are we back to PLM?**  
 14:00:34 **2 Q.** Well, there's a point counting method for  
 14:00:37 **3** PLM and SEM.  
 14:00:38 **4 A. Yeah.**  
 14:00:38 **5 Q.** So you don't do SEM, right?  
 14:00:39 **6 A. No.**  
 14:00:40 **7 Q.** Okay. All right. I'm going to skip that.  
 14:00:42 **8 A. No. No. No. Yep, okay.**  
 14:00:43 **9 Q.** I'll skip that, that's fine.  
 14:00:49 **10** So let's talk about the coefficient of  
 14:00:50 **11** variation study. I'm just going to give it to you.  
 14:00:52 **12 A. Okay.**  
 14:00:53 **13 Q.** We will mark it as an exhibit. What's the  
 14:00:56 **14** next exhibit? She has to mark it.  
**15 A. Yep.**  
**16** (Defendants' Exhibit 3 was marked for  
 14:01:22 **17** identification.)  
 14:01:22 **18 Q.** (By Mr. Chachkes) All right. So is this  
 14:01:26 **19** the coefficient of variation study that you referred  
 14:01:29 **20** to earlier?  
 14:01:30 **21 A. Yes.**  
 14:01:42 **22 Q.** And that's where you got that 5 to 7  
 14:01:45 **23** percent deviation number from?  
 14:01:46 **24 A. Yes.**  
 14:01:46 **25 Q.** Is there a right answer and a wrong answer  
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 14:01:51 **1** as to whether someone you're looking at visually  
 14:01:54 **2** under TEM is a fiber or bundle?  
 14:01:56 **3** MS. O'DELL: Object to the form.  
 14:01:57 **4** THE WITNESS: Is a fiber or a bundle a  
 14:02:02 **5** right answer or a wrong answer? I would say  
 14:02:04 **6** yes.  
 14:02:05 **7 Q.** (By Mr. Chachkes) So is the coefficient  
 14:02:10 **8** of variation also -- can we also refer to it as an  
 14:02:13 **9** error rate? Is that the same thing?  
 14:02:14 **10 A. Yes.**  
 14:02:14 **11 Q.** And for this coefficient of variation you  
 14:02:18 **12** bought off-the-shelf J&J baby powder and added a  
 14:02:22 **13** known tremolite asbestos and anthophyllite asbestos  
 14:02:24 **14** standard reference material?  
 14:02:26 **15 A. Yes.**  
 14:02:27 **16 Q.** And you spiked the J&J baby powder with  
 14:02:31 **17** enough asbestos to reach a concentration of about  
 14:02:33 **18** .3 percent?  
 14:02:33 **19 A. Yes.**  
 14:02:34 **20 Q.** And the highest concentration of any  
 14:02:35 **21** bottle that you've tested in this case is  
 14:02:38 **22** .035 percent; correct?  
 14:02:42 **23** MS. O'DELL: Object to the form.  
 14:02:43 **24** THE WITNESS: I would have to check and  
 14:02:44 **25** see.  
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14:02:44 **1 Q.** (By Mr. Chachkes) Okay. Do you have --  
 14:02:44 **2** just sitting here today, without referring to the  
 14:02:46 **3** report, do you have an idea of what the highest  
 14:02:48 **4** concentration of any bottle of MDL samples that you  
 14:02:51 **5** tested is?  
 14:02:52 **6** MS. O'DELL: Object to the form.  
 14:02:53 **7** THE WITNESS: Again, I can't remember off  
 14:02:54 **8** the top of my head right now, yeah.  
 14:02:55 **9 Q.** (By Mr. Chachkes) That's fine. It's not  
 14:02:57 **10** a memory test.  
**11 A. Yep.**  
 14:02:58 **12 Q.** For the coefficient of variation you  
 14:03:00 **13** prepared 25 grid openings; correct?  
 14:03:02 **14 A. Yes.**  
 14:03:02 **15 Q.** And then you had four TEM analysts look at  
 14:03:06 **16** the exact same grids and analyze them for tremolite  
 14:03:09 **17** and anthophyllite asbestos; correct?  
 14:03:10 **18 A. Yes. Yes.**  
 14:03:11 **19 Q.** And so those four analysts were looking at  
 14:03:13 **20** the exact same thing?  
 14:03:14 **21 A. Yes.**  
 14:03:14 **22 Q.** And these are the analysts who did the  
 14:03:19 **23** testing of the MDL samples?  
 14:03:21 **24 A. To my knowledge, yes.**  
 14:03:22 **25 Q.** Do you consider the error rate that is  
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 14:03:28 **1** your conclusion in the coefficient of variation study  
 14:03:31 **2** to be a good one for a lab?  
 14:03:33 **3 A. Yes.**  
 14:03:33 **4 Q.** Looking specifically at the count sheets  
 14:03:37 **5** for tremolite, two of the analysts found nine  
 14:03:42 **6** structures in the sample and two found ten  
 14:03:44 **7** structures; correct?  
 14:03:45 **8 A. Yes.**  
 14:03:45 **9 Q.** And that's the 6 percent error rate you  
 14:03:49 **10** were talking about, the roughly 6 percent error rate?  
 14:03:51 **11** MS. O'DELL: Object to the form.  
 14:03:52 **12** THE WITNESS: That's part of the way it's  
 14:03:54 **13** calculated, yes.  
 14:03:55 **14 Q.** (By Mr. Chachkes) Okay. What other ways  
 14:03:58 **15** was it calculated?  
 14:03:59 **16 A. That's the way it was calculated according**  
 14:04:01 **17 to the formula we used.**  
 14:04:02 **18 Q.** Okay.  
 14:04:03 **19 A. Yep.**  
 14:04:03 **20 Q.** Your analysts wrote down whether the  
 14:04:08 **21** structure they found was a fiber or bundle; right?  
 14:04:10 **22 A. Yes.**  
 14:04:11 **23 Q.** This is a part of the study parameters;  
 14:04:17 **24** right?  
**25 A. Yes.**  
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14:04:17 1 Q. Let me --  
14:04:22 2 A. I mean, the rate is based on the number of  
14:04:24 3 structures that they counted. Now, they may have  
14:04:26 4 been a fiber or a bundle, but it's the total number  
14:04:29 5 of structures they counted. Yep.  
14:04:31 6 MR. CHACHKES: Let's mark as the next  
14:04:32 7 exhibit, what are we on, 4?  
8 (Defendants' Exhibit 4 was marked for  
14:04:52 9 identification.)  
14:04:52 10 Q. (By Mr. Chachkes) So what we have marked  
14:04:55 11 as Rigler 4 is a demonstrative we worked up so that  
14:04:57 12 we can see -- compare the analysts' work against each  
14:04:59 13 other.  
14:05:00 14 Can you just confirm that -- let's look,  
14:05:03 15 for example, at analyst 1, what they found for grid  
14:05:10 16 opening A8-E2?  
14:05:16 17 A. Which analysis is this? Which sample is  
14:05:17 18 this?  
14:05:18 19 Q. So this is -- you've gone to the appendix,  
14:05:21 20 right, of Rigler 3.  
14:05:26 21 A. What? Where are we --  
14:05:29 22 Q. So Rigler 3 is the coefficient of  
14:05:32 23 variation study?  
14:05:33 24 A. Okay.  
14:05:33 25 Q. And if you go into -- there are sheets for

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14:06:21 1 demonstrative?  
14:06:22 2 A. Yep.  
14:06:22 3 Q. And analyst number 3, A8-E2, that analyst  
14:06:27 4 detected a fiber?  
14:06:28 5 A. Yes.  
14:06:29 6 Q. Okay. And then analyst number 4, A8-E2,  
14:06:34 7 that analyst detected a bundle?  
14:06:36 8 A. Yes. Yep.  
14:06:37 9 MS. O'DELL: Did you say A8-2 twice?  
14:06:41 10 THE WITNESS: This one.  
14:06:41 11 MR. CHACHKES: A8-E2.  
14:06:43 12 THE WITNESS: Yeah. Is that grid square?  
14:06:44 13 MS. O'DELL: Yeah.  
14:06:45 14 THE WITNESS: Yeah.  
14:06:45 15 MS. O'DELL: Got it. And then for --  
14:06:49 16 Q. (By Mr. Chachkes) Okay. So what we've  
14:06:51 17 done is we've summarized these grid openings in this  
14:06:55 18 demonstrative in that way --  
14:06:56 19 A. Right.  
14:06:56 20 Q. -- do you follow me so far?  
14:06:58 21 A. Yes.  
14:06:58 22 Q. And your analysts are trained to  
14:07:00 23 distinguish between a fiber and a bundle; right?  
14:07:02 24 A. Yes.  
14:07:02 25 Q. And you ran this experiment to detect how

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14:05:38 1 different analysts; right?  
14:05:39 2 A. Yeah, these are the count sheets, right.  
14:05:41 3 Q. Right. So if you go to the first analyst  
14:05:48 4 and you go to A8-E2 --  
14:05:51 5 A. Okay.  
14:05:51 6 Q. -- you see that the structure identified  
14:05:53 7 was a bundle --  
14:05:54 8 A. Okay.  
14:05:54 9 Q. -- right?  
14:05:55 10 A. Yes.  
14:05:56 11 Q. Okay. And then in my demonstrative you  
14:05:58 12 see that's a bundle; right?  
14:06:00 13 A. Right.  
14:06:00 14 Q. And then you go to analyst number 2 -- is  
14:06:06 15 that the second page?  
14:06:07 16 A. Yes.  
14:06:07 17 Q. Okay. And it says in the upper left-hand  
14:06:09 18 corner analyst 2?  
14:06:10 19 A. Yes.  
14:06:10 20 Q. Okay. That for A8-E2 that analyst  
14:06:16 21 identified a fiber?  
14:06:17 22 A. Okay.  
14:06:17 23 Q. Is that correct?  
14:06:18 24 A. Uh-huh.  
14:06:19 25 Q. Okay. And that's reflected in the

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14:07:06 1 good your analysts were at identifying the same  
14:07:09 2 thing?  
14:07:09 3 MS. O'DELL: Object to the form.  
14:07:10 4 Q. (By Mr. Chachkes) Is that a yes?  
14:07:11 5 A. That would be yes.  
14:07:11 6 Q. But out of the 11 grid openings, your  
14:07:14 7 analysts only came to consensus on the type of  
14:07:16 8 structure they found only once?  
14:07:18 9 MS. O'DELL: Object to the form.  
14:07:19 10 THE WITNESS: Every time they came to the  
14:07:20 11 consensus that it was tremolite.  
14:07:22 12 Q. (By Mr. Chachkes) This is not the  
14:07:23 13 question.  
14:07:23 14 A. But that is the answer. This is what  
14:07:25 15 we're concerned about here, is it asbestos.  
14:07:27 16 Q. The question before you is: Out of 11  
14:07:30 17 grid openings your analysts only came to a consensus  
14:07:33 18 on the type of structure they found only once?  
14:07:36 19 A. What's that? Out of 11 grid openings?  
14:07:39 20 Q. Right.  
14:07:40 21 A. No.  
14:07:40 22 Q. Okay. Look at the demonstrative.  
14:07:43 23 A. Okay.  
14:07:43 24 Q. For A8-E2 your analysts did not find the  
14:07:46 25 same structure; right? Two found bundle, two found

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14:07:52 1 fiber?

14:07:52 2 A. Uh-huh.

14:07:53 3 Q. For A8-E4 they all agree it's a fiber?

14:07:57 4 A. Uh-huh.

14:07:57 5 Q. For A8-E5 they did not agree whether it

14:08:00 6 was a bundle or fiber.

14:08:02 7 A. Okay.

14:08:03 8 MS. O'DELL: And feel free to check if you

14:08:05 9 need to check the data. It's in the

14:08:08 10 demonstrative.

14:08:08 11 Q. (By Mr. Chachkes) Yeah. I mean, if you

14:08:09 12 think we're putting a fraudulent --

14:08:13 13 A. No --

14:08:13 14 Q. -- in front of you --

14:08:13 15 A. -- no.

14:08:13 16 MS. O'DELL: I think mistakes can happen.

14:08:15 17 THE WITNESS: I'm sure they can.

14:08:15 18 MS. O'DELL: I think probably the others

14:08:16 19 happen, too, but I'm not suggesting that in this

14:08:18 20 situation.

14:08:18 21 Q. (By Mr. Chachkes) So you can see for the

14:08:20 22 11 grid openings on the demonstrative we put before

14:08:23 23 you, there was only one instance where the analysts

14:08:27 24 agreed on the fiber structure.

14:08:30 25 A. Okay.

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14:08:31 1 Q. Right?

14:08:32 2 A. Okay.

14:08:32 3 Q. And did you -- did you determine an error

14:08:39 4 rate for your analysts' ability to determine

14:08:42 5 morphology?

14:08:43 6 A. No.

14:08:44 7 Q. If you did based on this, it would be a

14:08:47 8 pretty high error rate, wouldn't it?

14:08:49 9 MS. O'DELL: Object to the form.

14:08:50 10 THE WITNESS: Well, it's not an error as

14:08:51 11 to what the material is, is it? It's all

14:08:53 12 tremolite. It's all tremolite asbestos. It all

14:08:56 13 meets the definition for tremolite asbestos,

14:08:57 14 bundle, fiber.

14:08:59 15 Q. (By Mr. Chachkes) I'll ask the question

14:09:00 16 again.

14:09:00 17 A. Okay.

14:09:00 18 Q. If you were to determine an error rate for

14:09:03 19 determining the morphology of what the analysts in

14:09:06 20 the coefficient of variation were looking at, it

14:09:09 21 would be a very high error rate, wouldn't it?

14:09:11 22 MS. O'DELL: Object to the form.

14:09:12 23 THE WITNESS: No. No, it wouldn't.

14:09:12 24 Q. (By Mr. Chachkes) Even though they only

14:09:13 25 agreed once out of 11 times?

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14:09:15 1 MS. O'DELL: Object to the form.

14:09:16 2 THE WITNESS: No.

14:09:16 3 Q. (By Mr. Chachkes) Why?

14:09:17 4 A. It's not.

14:09:18 5 Q. Why?

14:09:18 6 A. Well, the max I can see here is it might

14:09:23 7 be -- it might be maybe 50 percent, maybe, if that's

14:09:28 8 what it is.

14:09:28 9 Q. Okay.

14:09:29 10 A. And I don't agree with it, okay, because

14:09:32 11 the objective here is is it asbestos? Is it

14:09:35 12 asbestiform asbestos? The answer is yes.

14:09:37 13 Q. So a 50 percent error rate in your mind is

14:09:39 14 not high?

14:09:40 15 MS. O'DELL: Object to the form.

14:09:41 16 THE WITNESS: No, this is not --

14:09:43 17 MS. O'DELL: Give me a moment.

14:09:45 18 Object to the form.

14:09:46 19 Go ahead.

14:09:46 20 THE WITNESS: I mean, again, the objective

14:09:48 21 here is to determine if this is asbestos, is

14:09:51 22 this asbestiform. And the answer to that is

14:09:54 23 yes. You're going to have some variation based

14:09:56 24 on what they see in the microscope, all right,

14:10:01 25 and that is totally acceptable.

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14:10:03 1 Q. (By Mr. Chachkes) Okay. When you say

14:10:05 2 totally acceptable, what do you mean by that?

14:10:06 3 A. Well, it's acceptable based on what the

14:10:13 4 asbestiform is, according to the definition. All

14:10:16 5 right. Fiber, bundle, .5 or greater, 5-to-1 aspect

14:10:22 6 ratio. Every one of these fits that.

14:10:24 7 Q. So -- well, that's not quite correct;

14:10:28 8 right? A8-G4, three analysts found no detectable

14:10:34 9 asbestos and only one found asbestos; right?

14:10:36 10 A. That happens.

14:10:36 11 Q. Okay.

14:10:36 12 A. That can happen.

14:10:37 13 Q. And then A8-G5, three analysts found no

14:10:41 14 asbestos and one identified a bundle?

14:10:43 15 A. Again, that can happen.

14:10:45 16 Q. And you testified before that there's a

14:10:49 17 right answer and a wrong answer as to whether

14:10:52 18 something's a fiber or a bundle; right?

14:10:54 19 A. Yes.

14:10:54 20 Q. Do you know for grid opening A8-E4 which

14:10:59 21 analyst got it wrong and which analyst got it right?

14:11:01 22 MS. O'DELL: Object to the form.

14:11:02 23 THE WITNESS: They both got it right.

14:11:04 24 They all got it right.

14:11:05 25 Q. (By Mr. Chachkes) Okay. And so if

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14:11:08 1 there's objectively a right answer to whether it's a  
 14:11:11 2 fiber or bundle, how can something be both a fiber  
 14:11:14 3 and a bundle?  
 14:11:15 4 A. As I say, the analyst, their job is to  
 14:11:22 5 figure out whether it meets the definition, all  
 14:11:24 6 right? Fiber or bundle, it meets the specification  
 14:11:28 7 for whether it is asbestos, asbestiform asbestos.  
 14:11:33 8 Q. Okay. Putting --  
 14:11:34 9 A. That's what we're concerned about here.  
 14:11:36 10 Q. Putting aside whether there's -- what they  
 14:11:38 11 identified as asbestiform, I'm just talking about the  
 14:11:41 12 morphology.  
 14:11:41 13 A. Sure.  
 14:11:42 14 Q. For A8-E2, two analysts must have gotten  
 14:11:46 15 it wrong and two must have gotten it right.  
 14:11:48 16 MS. O'DELL: Object to the form.  
 14:11:49 17 THE WITNESS: No. They all got it right.  
 14:11:50 18 Q. (By Mr. Chachkes) Okay. So you don't  
 14:11:50 19 care whether an analyst correctly identifies  
 14:11:54 20 something as a bundle or fiber?  
 14:11:56 21 MS. O'DELL: Object to the form.  
 14:11:56 22 MS. PARFITT: Misstates his testimony.  
 14:11:59 23 THE WITNESS: What I've said is it meets  
 14:12:00 24 the definition. That's what is of concern to  
 14:12:03 25 me. That's the most important part.

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14:12:39 1 your question.  
 14:12:39 2 THE WITNESS: Numerous times.  
 14:12:41 3 MS. O'DELL: Excuse me. Three or four  
 14:12:42 4 times. If you want to waste your time, but  
 14:12:45 5 don't badger the witness.  
 14:12:46 6 MR. CHACHKES: I'm not going to badger the  
 14:12:46 7 witness --  
 14:12:50 8 MS. O'DELL: You are badgering the  
 14:12:50 9 witness.  
 14:12:50 10 MR. CHACHKES: -- clear answer.  
 14:12:50 11 MS. O'DELL: He's answered your question  
 14:12:51 12 very clearly.  
 14:12:52 13 MR. CHACHKES: I'm going to ask the same  
 14:12:53 14 question again. You can tell me I'm not allowed  
 14:12:56 15 to, and I'll move on.  
 14:12:56 16 MS. O'DELL: I'm telling you that the  
 14:12:56 17 rules require that you not badger the witness.  
 14:12:56 18 That's what I'm stating to you.  
 14:13:01 19 MR. CHACHKES: I'm -- level voice. It's a  
 14:13:02 20 calm question. It's a serious question. So.  
 14:13:04 21 MS. O'DELL: That doesn't mean you're not  
 14:13:08 22 badgering the witness, as you are well aware.  
 14:13:09 23 MR. CHACHKES: I believe I'm entitled to a  
 14:13:11 24 clear answer to a clear question.  
 14:13:13 25 MS. O'DELL: You're not entitled to the

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14:12:04 1 Q. (By Mr. Chachkes) The question is do you  
 14:12:06 2 care whether one of your analysts misidentifies a  
 14:12:09 3 bundle as a fiber or a fiber as a bundle?  
 14:12:11 4 MS. O'DELL: Object to the form.  
 14:12:13 5 Q. (By Mr. Chachkes) Do you care?  
 14:12:14 6 MS. O'DELL: Object to the form.  
 14:12:15 7 THE WITNESS: I care if they identify it  
 14:12:19 8 properly according to the regulations, and in  
 14:12:22 9 all cases they have.  
 14:12:23 10 Q. (By Mr. Chachkes) I'll ask the same  
 14:12:24 11 question again.  
 14:12:24 12 A. And I'll answer it the same way every  
 14:12:26 13 time.  
 14:12:26 14 Q. We'll add this to the list of things we're  
 14:12:28 15 going to get the magistrate to --  
 14:12:28 16 A. Fine.  
 14:12:30 17 Q. -- answer.  
 14:12:30 18 A. That's fine.  
 14:12:30 19 Q. Do you care --  
 14:12:31 20 A. I'm going to answer it the same way, so we  
 14:12:33 21 can move on.  
 14:12:34 22 Q. I want a clear record. If you don't want  
 14:12:36 23 to answer -- do you care --  
 14:12:37 24 A. I've answered already.  
 14:12:37 25 MS. O'DELL: Excuse me. He's answered

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14:13:13 1 answer that you want. You're entitled to an  
 14:13:13 2 answer, and he's answered your question.  
 14:13:13 3 MR. CHACHKES: Let's maybe -- I don't  
 14:13:19 4 think this colloquy is productive. I'm going to  
 14:13:19 5 ask the same question again. If you want to say  
 14:13:19 6 don't ask it, you can order me not to ask it.  
 14:13:22 7 I'm going to ask it again.  
 14:13:23 8 Q. (By Mr. Chachkes) Do you care whether  
 14:13:24 9 your analysts misidentify a bundle as a fiber or a  
 14:13:28 10 fiber as a bundle? Just the morphology I'm talking  
 14:13:30 11 about.  
 14:13:31 12 A. Asked and answered.  
 14:13:32 13 MS. O'DELL: Excuse me. Object to the  
 14:13:33 14 form.  
 14:13:34 15 Q. (By Mr. Chachkes) So you believe you've  
 14:13:37 16 already answered that?  
 14:13:37 17 A. Yes.  
 14:13:38 18 Q. Okay. And if I were to say you don't care  
 14:13:41 19 about whether an analyst is misidentifying a  
 14:13:44 20 morphology, would I be wrong or right?  
 14:13:46 21 MS. O'DELL: You would be misstating his  
 14:13:48 22 testimony. Object to the question.  
 14:13:49 23 Q. (By Mr. Chachkes) If I said you do care  
 14:13:52 24 that an analyst misidentified the morphology of  
 14:13:56 25 asbestos, would I be wrong or right?

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14:13:57 **1** MS. O'DELL: Object to the form. He's  
 14:13:59 **2** answered your question.  
 14:13:59 **3** THE WITNESS: I've already answered the  
 14:14:01 **4** question.  
 14:14:01 **5** MR. CHACHKES: Okay. We're going to add  
 14:14:03 **6** that to the list of questions for the  
 14:14:04 **7** magistrate.  
 14:14:09 **8** Q. (By Mr. Chachkes) Does whether you  
 14:14:12 **9** identify something as a bundle or a fiber affect the  
 14:14:15 **10** concentration values in your report?  
 14:14:19 **11** A. No.  
 14:14:19 **12** Q. Not at all?  
 14:14:24 **13** A. No.  
 14:14:24 **14** Q. Does the Rigler 4 demonstrative which is  
 14:14:32 **15** derived from your coefficient of variation study lead  
 14:14:36 **16** you to believe that maybe the TEM is not the best  
 14:14:39 **17** apparatus for resolving morphology?  
 14:14:41 **18** A. No.  
 14:14:42 **19** MS. O'DELL: Object to the form.  
 14:14:43 **20** THE WITNESS: It is the best.  
 14:14:45 **21** Q. (By Mr. Chachkes) No evidence will shake  
 14:14:46 **22** you from that opinion?  
 14:14:47 **23** A. No.  
 14:14:47 **24** Q. Okay. Let's talk about asbestos. Ready?  
 14:14:56 **25** A. I thought that's what we've been talking

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14:14:58 **1** about.  
 14:14:58 **2** Q. Completely different topic.  
 14:14:59 **3** A. All right.  
 14:15:00 **4** Q. You talk about the Blount paper in your  
 14:15:02 **5** expert report; correct?  
 14:15:04 **6** A. Yes.  
 14:15:04 **7** Q. Okay. In the Blount paper there's a  
 14:15:06 **8** particle size distribution?  
 14:15:09 **9** A. Yes.  
 14:15:09 **10** Q. Okay. And out in the published literature  
 14:15:16 **11** there are publications that have particle sized  
 14:15:21 **12** distributions that -- strike that.  
 14:15:25 **13** That there's a characteristic -- there is  
 14:15:27 **14** a characteristic particle size distribution for  
 14:15:30 **15** asbestos; is that correct?  
 14:15:31 **16** A. Well, depending on how that sample's been  
 14:15:43 **17** processed, you're going to have different fiber  
 14:15:45 **18** sizes, different -- they're going to be different.  
 14:15:48 **19** You're going to have different aspect ratios and  
 14:15:51 **20** different sizes.  
 14:15:51 **21** Q. For any given sample that everyone agrees  
 14:15:56 **22** is asbestos, it's going to have a characteristic  
 14:15:59 **23** particle size distribution; right?  
 14:16:00 **24** MS. O'DELL: Object to the form.  
 14:16:01 **25** THE WITNESS: It can.

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14:16:02 **1** Q. (By Mr. Chachkes) Okay. Meaning some  
 14:16:06 **2** of -- strike that.  
 14:16:06 **3** Does a -- you understand what a cleavage  
 14:16:10 **4** fragment is?  
 14:16:11 **5** A. Yes.  
 14:16:11 **6** Q. Would you call a cleavage fragment  
 14:16:13 **7** asbestos?  
 14:16:13 **8** A. If it was of the size and shape that met  
 14:16:16 **9** the regulatory definition, yes.  
 14:16:18 **10** Q. Do cleavage fragments have a different  
 14:16:21 **11** particle size distribution than asbestos?  
 14:16:26 **12** MS. O'DELL: Object on the form.  
 14:16:27 **13** THE WITNESS: They can.  
 14:16:29 **14** Q. (By Mr. Chachkes) Okay. Using -- when I  
 14:16:31 **15** say geological definition, I've heard you guys talk  
 14:16:34 **16** about --  
 14:16:34 **17** A. Yes.  
 14:16:34 **18** Q. -- I'm going to use your phrase geological  
 14:16:37 **19** definition of asbestos.  
 14:16:39 **20** A. All right.  
 14:16:39 **21** Q. Using a geological definition of asbestos,  
 14:16:42 **22** can you have a cleavage fragment that is greater than  
 14:16:46 **23** 5-to-1 aspect ratio?  
 14:16:48 **24** MS. O'DELL: Object to the form.  
 14:16:49 **25** THE WITNESS: In my opinion, the answer to

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14:16:52 **1** that is yes.  
 14:16:53 **2** Q. (By Mr. Chachkes) Okay. And using the  
 14:16:56 **3** geological definition of asbestos as you have used  
 14:17:02 **4** it, there can be an asbestiform particle that has an  
 14:17:06 **5** aspect ratio of below 3-to-1?  
 14:17:08 **6** MS. O'DELL: Object to the form.  
 14:17:10 **7** THE WITNESS: Are you talking about what  
 14:17:13 **8** kind of particle?  
 14:17:14 **9** Q. (By Mr. Chachkes) Asbestiform particle.  
 14:17:15 **10** A. Smaller than 3-to-1?  
 14:17:17 **11** Q. Yeah.  
 14:17:17 **12** A. I mean, from a regulatory standpoint, it  
 14:17:22 **13** would be 3-to-1, 5-to-1. So --  
 14:17:27 **14** Q. Yeah. I don't want to interrupt.  
 14:17:29 **15** So for just a geological definition as  
 14:17:31 **16** you've -- as --  
 14:17:34 **17** A. Yeah.  
 14:17:34 **18** Q. It's just a geological definition as you  
 14:17:39 **19** have used that phrase, can there be, under the  
 14:17:42 **20** geological definition, asbestos with an aspect ratio  
 14:17:45 **21** below 3-to-1?  
 14:17:46 **22** MS. O'DELL: Object to the form.  
 14:17:47 **23** THE WITNESS: Well, the geological  
 14:17:51 **24** definition that we've talked about has to do  
 14:17:54 **25** with macro, large, very large that you can hold

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14:17:58 **1** in your hand kinds of particles. So in most  
 14:18:03 **2** cases of that size, you know, you may see some  
 14:18:08 **3** that are in that range, but you have to use the  
 14:18:09 **4** PLM to see them, probably.  
 14:18:11 **5** **Q.** (By Mr. Chachkes) Okay. If I took, under  
 14:18:14 **6** the geological definition, a tremolite particle that  
 14:18:17 **7** had a 6-to-1 aspect ratio and I snapped it into two  
 14:18:21 **8** 3-to-1 aspect ratio particles, under the geological  
 14:18:24 **9** definition those two particles would still be  
 14:18:27 **10** asbestos; right?  
 14:18:28 **11** **A. Yes. I mean, if they were -- yeah. They**  
 14:18:32 **12 were on a -- yes, they would be.**  
 14:18:34 **13** **Q.** Let me ask it --  
 14:18:35 **14** **A. If they were equally divided.**  
 14:18:36 **15** **Q.** Yeah. Let me just ask a better question  
 14:18:38 **16** to be fair.  
 14:18:39 **17** If I had a tremolite particle that was --  
 14:18:42 **18** that had a 6-to-1 aspect ratio and I snapped it into  
 14:18:46 **19** three parts perfectly evenly so that each had a  
 14:18:50 **20** 2-to-1 aspect ratio, under the geological definition  
 14:18:53 **21** each of those would still be asbestos; right?  
 14:18:54 **22** MS. O'DELL: Object to the form.  
 14:18:56 **23** THE WITNESS: On a microscopic scale they  
 14:18:58 **24** wouldn't be. I mean, they wouldn't fit the  
 14:19:00 **25** regulatory definition.  
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14:19:00 **1** **Q.** (By Mr. Chachkes) I'm talking about the  
 14:19:01 **2** geological.  
 14:19:02 **3** **A. I mean --**  
 14:19:08 **4** MS. O'DELL: Object to the form.  
 14:19:09 **5** THE WITNESS: Yeah, I don't -- I mean, I  
 14:19:11 **6** think on a microscale versus, you know, what I  
 14:19:14 **7** can see in my hand. See what I'm saying?  
 14:19:17 **8** **Q.** (By Mr. Chachkes) No.  
 14:19:18 **9** **A. Yeah. Well, that's how I feel about the**  
 14:19:22 **10 question you just asked me. I'm not quite sure of**  
 14:19:24 **11 exactly -- I mean, I understand what the concept is,**  
 14:19:28 **12 but when you're saying on a geological scale, I mean,**  
 14:19:32 **13 if the aspect ratio is less than 3-to-1, it wouldn't**  
 14:19:35 **14 come under the regulatory definition.**  
 14:19:37 **15** **Q.** Right. But I'm not asking about  
 14:19:38 **16** regulatory.  
 14:19:39 **17** **A. Well, that's where I am with it.**  
 14:19:41 **18** **Q.** Right.  
 14:19:43 **19** **A. I mean, if you're going to say it's**  
 14:19:45 **20 asbestiform, it's got to have that ratio. It's got**  
 14:19:50 **21 to have at least a 5-to-1 ratio.**  
 14:19:52 **22** **Q.** So if I have a chunk of gold and I break  
 14:19:54 **23** it in half, each half would still be gold; right?  
 14:19:57 **24** **A. Yeah.**  
 14:19:57 **25** **Q.** If I break those two halves again, each  
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14:20:00 **1** part would still be gold?  
 14:20:01 **2** **A. Correct.**  
 14:20:01 **3** **Q.** And I can keep going doing that until I  
 14:20:05 **4** had very small pieces and they still would be gold?  
 14:20:07 **5** **A. Sure.**  
 14:20:08 **6** **Q.** You're saying the same does not apply to  
 14:20:10 **7** asbestos, that I could break asbestos and at a  
 14:20:10 **8** certain point it's not asbestos?  
 14:20:11 **9** MS. O'DELL: Object to the form.  
 14:20:12 **10** THE WITNESS: Well, I mean, chemically it  
 14:20:15 **11** still is. Yes.  
 14:20:17 **12** **Q.** (By Mr. Chachkes) Okay. You use -- so I  
 14:20:26 **13** didn't see the phrase asbestiform talc in your  
 14:20:28 **14** report; is that correct?  
 14:20:30 **15** **A. I don't -- it might be in there, yeah, I**  
 14:20:33 **16 think it is. Yeah.**  
 14:20:34 **17** **Q.** Okay. In your report at page 8 you talk  
 14:20:37 **18** about fibrous talc, you found fibrous talc in  
 14:20:42 **19** 98 percent of the Italian and Vermont talc samples by  
 14:20:45 **20** ISO 22262. Does that ring a bell?  
 14:20:48 **21** **A. Yes.**  
 14:20:48 **22** **Q.** What is your definition of fibrous talc?  
 14:20:50 **23** **A. It would be talc that had that aspect**  
 14:20:52 **24 ratio of 5-to-1.**  
 14:20:53 **25** **Q.** You would require parallel sides as well?  
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14:20:56 **1** **A. Yes.**  
 14:20:56 **2** **Q.** Is there a scientific consensus that there  
 14:21:01 **3** is such a thing as fibrous talc?  
 14:21:02 **4** **A. Yes.**  
 14:21:02 **5** **Q.** Are you aware of any epidemiologist or  
 14:21:07 **6** doctor who has studied the health effects of fibrous  
 14:21:09 **7** talc?  
 14:21:10 **8** MS. O'DELL: Object to the form.  
 14:21:11 **9** THE WITNESS: Well, if the talc -- if  
 14:21:18 **10** there's fibrous talc in with -- let's just say  
 14:21:22 **11** we called it talc, whether it's got a fibrous  
 14:21:24 **12** component or not, platy, you know, mostly platy.  
 14:21:30 **13** As far as IARC is concerned, they say that that  
 14:21:35 **14** is -- that will be -- if it has asbestos in it,  
 14:21:38 **15** it's going to be regulated and hazardous to  
 14:21:44 **16** health.  
 14:21:44 **17** **Q.** (By Mr. Chachkes) The question was are  
 14:21:45 **18** you aware of any epidemiologist or doctor who has  
 14:21:48 **19** studied the health effects of fibrous talc?  
 14:21:51 **20** MS. O'DELL: Object to the form.  
 14:21:53 **21** **Q.** (By Mr. Chachkes) It's a yes or no  
 14:21:54 **22** question.  
 14:21:54 **23** **A. Yes, there have been numerous studies on**  
 14:21:59 **24 fibrous talc, and I don't know if they're in some of**  
 14:22:04 **25 our reference material or not, but there have been**  
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14:22:05 **1 numerous studies that have been done.**  
14:22:07 **2 Q.** Can you name a single doctor or  
14:22:09 **3** epidemiologist who has done a study on the health  
14:22:11 **4** effects of fibrous talc --  
14:22:13 **5** MS. O'DELL: Object to the form --  
14:22:14 **6** THE WITNESS: Are you talking about  
14:22:15 **7** medical doctors, Ph.D.s, what? You said doctor.  
14:22:18 **8 Q.** (By Mr. Chachkes) Let's say medical  
14:22:20 **9** doctor.  
14:22:20 **10 A. Yeah, let's say doctors like you said**  
14:22:22 **11 before, then yes, there are.**  
14:22:23 **12 Q.** Okay. Start with medical doctors.  
14:22:25 **13 A. Okay.**  
14:22:30 **14 Q.** Can you name a medical doctor who has  
14:22:30 **15** studied the health effects of fibrous talc?  
14:22:30 **16 A. There are --**  
14:22:31 **17** MS. O'DELL: Object to the form.  
14:22:31 **18** THE WITNESS: I can't name one right now  
14:22:35 **19** as I sit here, but there are that have done  
14:22:36 **20** those studies.  
14:22:37 **21 Q.** (By Mr. Chachkes) Can you name an  
14:22:38 **22** epidemiologist?  
14:22:39 **23** MS. O'DELL: Object to the form.  
14:22:40 **24** THE WITNESS: There are ones that have.  
14:22:41 **25 Q.** (By Mr. Chachkes) Can you name one?  
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14:22:42 **1 A. No, not as I sit here right here.**  
14:22:44 **2 Q.** Can you name just a general doctor who has  
14:22:46 **3** studied the health effects of fibrous talc?  
14:22:49 **4** MS. O'DELL: Object to the form.  
14:22:49 **5** THE WITNESS: It's the same answer to the  
14:22:51 **6** question. Doctor, doctor.  
14:22:52 **7 Q.** (By Mr. Chachkes) Okay. Well, there's  
14:22:53 **8** medical doctor and regular -- and other -- like  
14:22:53 **9** you're a doctor --  
14:22:53 **10 A. Well --**  
14:22:53 **11** THE REPORTER: Wait. Wait.  
14:22:58 **12** THE WITNESS: I know, but we said doctors.  
14:23:02 **13 Q.** (By Mr. Chachkes) But sitting here today  
14:23:03 **14** you can't name just a Ph.D. who has studied -- just  
14:23:06 **15** by name -- a Ph.D. who has studied the health effects  
14:23:09 **16** of fibrous talc -- exposure to fibrous talc?  
14:23:10 **17** MS. O'DELL: Object to form.  
14:23:12 **18** THE WITNESS: As I sit right here, I can't  
14:23:14 **19** name them, but they do exist. I have reference  
14:23:17 **20** material and I'd be happy to get that for you.  
14:23:20 **21 Q.** (By Mr. Chachkes) Can you identify --  
14:23:21 **22 A. Would you like to have that material?**  
14:23:23 **23 Would you like to have that --**  
14:23:24 **24 Q.** This deposition doesn't work if you ask  
14:23:26 **25** questions back to me.  
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14:23:27 **1 A. I understand. I understand.**  
14:23:27 **2 Q.** Can you identify any published authority  
14:23:29 **3** for your definition of fibrous talc?  
14:23:31 **4 A. Sure.**  
14:23:31 **5 Q.** What?  
14:23:32 **6 A. I would want to say EPA right now.**  
14:23:46 **7 Q.** Any other?  
14:23:47 **8 A. I'd have to think about that.**  
14:23:50 **9 Q.** Specifically what EPA document?  
14:23:53 **10 A. I'll have to find that for you. Be happy**  
14:23:58 **11 to find that.**  
14:23:58 **12 Q.** In the method in the 22262 method that you  
14:24:04 **13** used in your report, does it use the phrase fibrous  
14:24:08 **14** talc?  
14:24:08 **15 A. I don't recall. I'd have to look through**  
14:24:10 **16 it.**  
14:24:11 **17 Q.** Does it use the phrase asbestiform talc?  
14:24:13 **18 A. Same answer.**  
14:24:14 **19 Q.** Do you think those phrases are in there?  
14:24:17 **20 A. I would have to look.**  
14:24:18 **21 Q.** Are fibrous talc and asbestiform talc  
14:24:24 **22** different?  
14:24:25 **23 A. Fibrous talc and asbestiform talc, if it**  
14:24:29 **24 meets the definition, it would be considered**  
14:24:31 **25 asbestiform talc, and you could still call it fibrous**  
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14:24:34 **1 talc.**  
14:24:35 **2 Q.** Are they --  
14:24:35 **3 A. So they could be one and the same.**  
14:24:37 **4 Q.** Could they be one and the same --  
14:24:39 **5 A. Let's say they are. If they meet the**  
14:24:41 **6 definition, then they are.**  
14:24:43 **7 Q.** So the two phrases are synonymous?  
14:24:46 **8 A. If they meet the specifications for the**  
14:24:48 **9 regulated fiber, the definition, than they are.**  
14:24:50 **10 Q.** Is there a situation where fibrous talc  
14:24:53 **11** and asbestiform talc aren't the same?  
14:24:56 **12** MS. O'DELL: Object to the form.  
14:24:57 **13** THE WITNESS: Again, if they don't meet  
14:24:58 **14** the aspect ratio, then they wouldn't be the  
14:25:03 **15** same.  
14:25:03 **16 Q.** (By Mr. Chachkes) Well, then they  
14:25:04 **17** wouldn't be fibrous talc and asbestiform --  
14:25:06 **18 A. Sure. They could be --**  
14:25:06 **19** MS. O'DELL: Object to the form.  
14:25:09 **20** THE WITNESS: -- fibrous at 4-to-1,  
14:25:09 **21** 3-to-1, 2-to-1. Sure. They will have a fibrous  
14:25:13 **22** form.  
14:25:13 **23 Q.** (By Mr. Chachkes) So you're saying that  
14:25:14 **24** if there's -- you could have fibrous talc at a 2-to-1  
14:25:18 **25** aspect ratio, but it would not be asbestiform talc?  
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14:25:21 **1** **A. Correct.**  
14:25:21 **2** **Q. Are there two kinds of tremolite,**  
14:25:34 **3 asbestiform and nonasbestiform?**  
14:25:36 **4** **A. Yes.**  
14:25:36 **5** **Q.** Just identifying something as tremolite  
14:25:41 **6** doesn't mean it's asbestiform?  
14:25:43 **7** MS. O'DELL: Object to the form.  
14:25:44 **8** THE WITNESS: It can be massive tremolite.  
14:25:47 **9** You know, if it's fibrous and it meets the  
14:25:49 **10** definition, then it's going to be asbestiform.  
14:25:51 **11** I mean, according to the definition.  
14:25:53 **12** **Q.** (By Mr. Chachkes) The question is just  
14:25:54 **13** identifying something as tremolite does not mean it's  
14:25:56 **14** asbestiform; is that correct?  
14:25:57 **15** MS. O'DELL: Object to the form.  
14:25:58 **16** THE WITNESS: Once again, you would have  
14:26:02 **17** to look at the form.  
14:26:03 **18** **Q.** (By Mr. Chachkes) To determine whether  
14:26:04 **19** it's asbestiform?  
14:26:05 **20** **A. Yes.**  
14:26:06 **21** MS. O'DELL: Object to the form.  
14:26:07 **22** **Q.** (By Mr. Chachkes) Just identifying  
14:26:08 **23** something as anthophyllite doesn't mean it's  
14:26:10 **24** asbestiform; correct?  
14:26:11 **25** MS. O'DELL: Object to the form.  
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14:26:12 **1** THE WITNESS: Once again, if it meets the  
14:26:15 **2** definition than it would be.  
14:26:17 **3** **Q.** (By Mr. Chachkes) Okay. And if it  
14:26:19 **4** doesn't meet the definition, it wouldn't be?  
14:26:21 **5** MS. O'DELL: Object to the form.  
14:26:22 **6** THE WITNESS: Well, it's still  
14:26:23 **7** anthophyllite. It may be, you know, below the  
14:26:26 **8** aspect ratio again. Causes the same health  
14:26:30 **9** effects.  
14:26:30 **10** **Q.** (By Mr. Chachkes) What's a cleavage  
14:26:36 **11** fragment again?  
14:26:36 **12** MS. O'DELL: Asked and answered.  
14:26:38 **13** THE WITNESS: Yeah. Talked about that  
14:26:39 **14** already.  
14:26:39 **15** **Q.** (By Mr. Chachkes) So what is it?  
14:26:41 **16** **A. It is a -- it's a form that would not have**  
14:26:45 **17 parallel sides. Wouldn't have the aspect ratio.**  
14:26:49 **18 It's going to be an odd shape.**  
14:26:50 **19** **Q.** Is something that had nonparallel sides  
14:26:55 **20** with an aspect ratio of 6-to-1, would that be a  
14:26:59 **21** cleavage fragment?  
14:27:00 **22** MS. O'DELL: Object to the form.  
14:27:01 **23** THE WITNESS: Most likely.  
14:27:02 **24** **Q.** (By Mr. Chachkes) Do you agree with the  
14:27:03 **25** statement: Crushing of nonasbestiform amphibole can  
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14:27:06 **1** lead to elongate fragments that conform to the  
14:27:09 **2** definition of an asbestiform fiber?  
14:27:11 **3** MS. O'DELL: Object to form.  
14:27:12 **4** THE WITNESS: Yes.  
14:27:12 **5** **Q.** (By Mr. Chachkes) Do you agree with this  
14:27:13 **6** statement: Crushed nonasbestiform amphiboles rarely  
14:27:17 **7** have aspect ratios exceeding 30-to-1?  
14:27:21 **8** **A. I mean, that is -- that's been stated, but**  
14:27:29 **9 it's as rarely -- so it's not 100 percent. So you**  
14:27:35 **10 can have some.**  
14:27:35 **11** **Q.** But you agree with the statement?  
14:27:38 **12** MS. O'DELL: Object to the form. He just  
14:27:40 **13** said what he thought about the statement.  
14:27:41 **14** THE WITNESS: Yeah.  
14:27:41 **15** **Q.** (By Mr. Chachkes) It's yes or no. Do  
14:27:43 **16** crushed -- do you agree with this statement, yes or  
14:27:45 **17** no: Crushed nonasbestiform amphiboles rarely have  
14:27:48 **18** aspect ratios exceeding 30-to-1?  
14:27:50 **19** MS. O'DELL: You may answer it any way  
14:27:52 **20** you'd like, Doctor. You're not restricted.  
14:27:54 **21** THE WITNESS: I mean, I've already  
14:27:55 **22** answered part of the question, and I would say  
14:27:56 **23** yes, you know.  
14:28:00 **24** MS. O'DELL: We have been going about an  
14:28:01 **25** hour. Why don't we take a quick break.  
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14:28:04 **1** MR. CHACHKES: Sure.  
14:28:43 **2** (Recess from 2:28 p.m. to 2:52 p.m.)  
14:28:43 **3** (Defendants' Exhibit 1 was marked for  
14:52:54 **4** identification.)  
14:52:54 **5** **Q.** (By Mr. Chachkes) Okay. Dr. Rigler, this  
14:53:11 **6** has already been marked as Rigler Exhibit 1. Can you  
14:53:15 **7** confirm that those are MAS invoices?  
14:53:17 **8** **A. Let's see. It has MAS on the letterhead.**  
14:53:26 **9 They look like they are, yep.**  
14:53:29 **10** **Q.** Okay. It looks like the first page is an  
14:53:31 **11** April invoice. Am I right there?  
14:53:33 **12** **A. April 8 to April 11, 2018.**  
14:53:38 **13** **Q.** Okay. And it looks like the second one on  
14:53:42 **14** page 2 is a March invoice?  
14:53:44 **15** **A. Let's see. Yes.**  
14:53:46 **16** **Q.** And then page 3 looks like a single block  
14:53:50 **17** billing for, I'm guessing, the report, the  
14:53:56 **18** November 15 report?  
14:53:56 **19** **A. I don't know. I have no idea. First time**  
14:53:59 **20 I've seen these.**  
14:53:59 **21** **Q.** Okay.  
14:54:00 **22** **A. Yeah, so I don't know.**  
14:54:01 **23** **Q.** Okay. So you wouldn't know whether  
14:54:03 **24** there's other billing --  
14:54:04 **25** **A. I have no idea.**  
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14:54:05 **1 Q.** And you don't know whether there's  
14:54:07 **2** underlying documents that support these?  
14:54:09 **3 A. I don't know.**  
14:54:10 **4 Q.** And you don't --  
14:54:11 **5 A. Have to ask Dr. Longo.**  
14:54:12 **6 Q.** Okay. And you don't know what the block  
14:54:14 **7** billing is for on number 3?  
14:54:15 **8 A. No.**  
14:54:16 **9 Q.** The third page, that is?  
14:54:17 **10 A. No, I don't.**  
14:54:18 **11 Q.** Do you know why the number 14 appears on  
14:54:22 **12** the third page?  
14:54:23 **13 A. That would be the department number.**  
14:54:26 **14 Q.** It's your department?  
14:54:27 **15 A. 14, yes.**  
14:54:28 **16 Q.** And what's that called?  
14:54:31 **17 A. I think it's called legal.**  
14:54:33 **18 Q.** Okay. So you're in legal?  
14:54:34 **19 A. Yes.**  
14:54:35 **20 Q.** Are you in any other departments?  
14:54:36 **21 A. No.**  
14:54:37 **22 Q.** Is Dr. Longo in legal?  
14:54:39 **23 A. Yes.**  
14:54:39 **24 Q.** Is he in any other departments?  
14:54:41 **25 A. Well, he is the departments.**

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**1 Q.** Oh, okay.  
14:54:44 **2 A. He's MAS.**  
14:54:44 **3 Q.** Is he in every department, 1 through  
14:54:47 **4** whatever?  
14:54:47 **5 A. I would say yes to that, but you need to**  
14:54:50 **6 ask him about that.**  
14:54:50 **7 Q.** What is the department called legal? What  
14:54:52 **8** is it?  
14:54:53 **9 A. 14. It just says 14.**  
14:54:54 **10 Q.** No, I mean substantively, what does legal  
14:54:58 **11** do? Why is there a group called legal?  
14:55:01 **12 A. It's just called. I don't know. That's**  
14:55:02 **13 what they've always called it.**  
14:55:03 **14 Q.** Does it do all the work that is for  
14:55:06 **15** litigations?  
14:55:07 **16 A. I don't --**  
14:55:09 **17 MS. O'DELL: Object to form.**  
14:55:11 **18 THE WITNESS: -- know. You'd have to ask**  
14:55:13 **19 Dr. Longo. Because they came up with the**  
14:55:14 **20 numbers and designations.**  
14:55:16 **21 Q.** (By Mr. Chachkes) When you do work that  
14:55:21 **22** is billable to, let's say, a company that's not  
14:55:24 **23** involved in litigation, does that go through unit 14?  
14:55:24 **24 A. For me?**  
14:55:25 **25 Q. Yes.**

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14:55:25 **1 A. I guess it does.**  
14:55:27 **2 Q.** Okay.  
14:55:27 **3 A. I just give them the hours.**  
14:55:29 **4 Q.** Okay. I'm done with that one.  
14:55:34 **5 A. All right.**  
14:55:34 **6 MR. CHACHKES: I still have a request**  
14:55:35 **7** pending for billing.  
14:55:37 **8 MS. O'DELL: That's what I have in my**  
14:55:39 **9** possession.  
14:55:39 **10 MR. CHACHKES: Okay.**  
14:55:39 **11 MS. O'DELL: If we receive any others,**  
14:55:41 **12** I'll let you know.  
14:55:43 **13 Q.** (By Mr. Chachkes) Okay. Can you pull up  
14:55:50 **14** Exhibit 5, which is, I think, if I've got it right,  
14:56:04 **15** 22262-2.  
14:56:14 **16 MR. SILVER: Alex, just for the record,**  
14:56:16 **17** when you say exhibit numbers, these are exhibits  
14:56:17 **18** to the depo of Dr. Longo that happened on  
14:56:21 **19** February 5 of 2019?  
14:56:23 **20 MR. CHACHKES: Correct. And a good**  
14:56:24 **21** clarification.  
14:56:24 **22 Q.** (By Mr. Chachkes) So this is Exhibit 5 to  
14:56:28 **23** yesterday's Longo deposition, if you can --  
14:56:29 **24 A. I don't have that.**  
14:56:30 **25 Q.** It's probably in this stack. I'll help

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14:56:32 **1** you find it.  
14:56:40 **2 MS. O'DELL: Are you referring to 22262-2?**  
14:56:42 **3 MR. CHACHKES: Part 2, yes.**  
14:56:45 **4 MS. O'DELL: Part 2.**  
14:56:45 **5 MR. CHACHKES: Dash 2. Okay.**  
14:56:51 **6 MS. O'DELL: I think I gave you mine.**  
14:56:58 **7 MR. CHACHKES: That one's his. It's got**  
14:56:58 **8** the stamp on it.  
14:56:58 **9 MS. O'DELL: It does, but I think I gave**  
14:57:02 **10** him mine earlier.  
14:57:02 **11 THE WITNESS: Yeah, I think you did. It's**  
14:57:06 **12** in there. She has it, hers.  
14:57:06 **13 Q.** (By Mr. Chachkes) Okay.  
14:57:06 **14 A. There we go.**  
14:57:06 **15 Q.** Can you turn to page -- well, do you see  
14:57:10 **16** where there's a section 3, Terms and Definitions,  
14:57:12 **17** it's very near the front?  
14:57:12 **18 A. Yes.**  
14:57:12 **19 Q.** And there's a definition for asbestiform  
14:57:14 **20** that's 3.5?  
14:57:22 **21 A. Yes.**  
14:57:23 **22 Q.** And do you see where there's a definition  
14:57:25 **23** for asbestos, 3.6?  
14:57:26 **24 A. Yes.**  
14:57:27 **25 Q.** You didn't apply -- when you talk about

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14:57:36 1 asbestos in your report, it's not the definition of  
14:57:40 2 asbestos that's in 3.6; correct?  
14:57:43 3 MS. O'DELL: Object to the form.  
14:57:44 4 THE WITNESS: Yeah. The 3.6 definition is  
14:57:49 5 the one that we say is -- this is a geological  
14:57:54 6 definition.  
14:57:54 7 Q. (By Mr. Chachkes) Right. And so my  
14:57:55 8 question is when I read the word asbestos in your  
14:57:57 9 report, it's not the 3.6 definition in this  
14:58:02 10 Exhibit 5; right?  
14:58:03 11 MS. O'DELL: Object to the form.  
14:58:04 12 THE WITNESS: It is based on the  
14:58:08 13 regulatory definition.  
14:58:09 14 Q. (By Mr. Chachkes) And the same question:  
14:58:11 15 Is it the -- it's different from the definition in  
14:58:15 16 3.6; correct?  
14:58:16 17 A. The regulatory definition?  
14:58:18 18 Q. The definition you're looking at right in  
14:58:20 19 front of you --  
14:58:21 20 A. Yes.  
14:58:21 21 Q. -- that's 3.6?  
14:58:22 22 A. Yes.  
14:58:22 23 Q. So in your report when you use asbestos,  
14:58:24 24 it's different than 3.6?  
14:58:26 25 MS. O'DELL: Object to the form.  
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14:58:27 1 Go ahead.  
14:58:29 2 THE WITNESS: The regulatory definition,  
14:58:32 3 again, depending upon the document that you look  
14:58:34 4 at, will include some of this language. For  
14:58:37 5 instance, the EPA includes some of this same  
14:58:41 6 language that's in 3.6, so you'll have some  
14:58:43 7 overlap there.  
14:58:44 8 Q. (By Mr. Chachkes) I'm not asking about  
14:58:45 9 overlap.  
14:58:46 10 Can I assume that whenever you use the  
14:58:47 11 phrase asbestos in your report you mean verbatim what  
14:58:50 12 is in 3.6 that's right in front of you?  
14:58:53 13 MS. O'DELL: Object to the form. That's  
14:58:55 14 not what he said.  
14:58:56 15 THE WITNESS: I hear what you're saying.  
14:59:00 16 Again, the regulatory definitions by standard  
14:59:07 17 groups, such as EPA, ASTM, they have this  
14:59:16 18 language in their definition, all right. So  
14:59:20 19 there's an overlap there.  
14:59:21 20 If you want to say we don't do that, what  
14:59:24 21 I would say is there is an overlap there, but  
14:59:28 22 this is a geological definition, and we -- you  
14:59:35 23 can't measure this flexibility and strength at  
14:59:37 24 the level of the structures that we're looking  
14:59:40 25 at.  
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14:59:40 1 Q. (By Mr. Chachkes) Okay.  
14:59:41 2 A. So I hope I've answered your question.  
14:59:43 3 Q. I thought it was a simple question, so I  
14:59:45 4 guess I have to ask it again.  
14:59:46 5 But, I mean, when you say there is  
14:59:50 6 asbestos in your report in J&J's bottles of cosmetic  
14:59:56 7 talc, do you mean to say that it contains a group of  
14:59:59 8 silicate materials belonging to the serpentine and  
15:00:02 9 amphibole groups which have crystallized in the  
15:00:05 10 asbestiform habit, causing them to be easily  
15:00:08 11 separated into long, thin, flexible, strong fibers  
15:00:12 12 when crushed or processed?  
15:00:14 13 A. If -- again, you know, we go by what's in  
15:00:21 14 the definition, the regulatory definition. And  
15:00:24 15 again, that does overlap -- some of the wording in  
15:00:30 16 those regulatory documents overlap what's in here  
15:00:35 17 too. So that would be applicable, if that helps  
15:00:38 18 answer the question.  
15:00:39 19 Q. I think you know what the question is.  
15:00:41 20 It's a very simple one.  
15:00:42 21 Is that your definition of asbestos in  
15:00:44 22 your report?  
15:00:45 23 MS. O'DELL: Object to the form.  
15:00:46 24 Q. (By Mr. Chachkes) Yes or no?  
15:00:48 25 MS. O'DELL: Object to the form --  
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15:00:49 1 THE WITNESS: Part of it is.  
15:00:50 2 MS. O'DELL: -- ask --  
15:00:50 3 Q. (By Mr. Chachkes) -- which part isn't?  
15:00:51 4 THE REPORTER: Wait.  
15:00:51 5 MS. O'DELL: Asked and answered.  
15:00:56 6 THE WITNESS: The strong fibers, the long,  
15:01:00 7 flexible, strong fibers portion of it.  
15:01:01 8 Q. (By Mr. Chachkes) Okay. You have not  
15:01:02 9 determined that J&J talc -- one way or the other,  
15:01:06 10 whether it is or isn't, you haven't done a  
15:01:09 11 determination of what you're calling asbestos in J&J  
15:01:12 12 talc is easily separated into long, thin, flexible,  
15:01:16 13 strong fibers when crushed or processed?  
15:01:18 14 MS. O'DELL: Object to form.  
15:01:19 15 THE WITNESS: I don't know how we would do  
15:01:20 16 that.  
15:01:20 17 Q. (By Mr. Chachkes) Okay. And can you turn  
15:01:24 18 to the next page, to cleavage fragment. Is that the  
15:01:28 19 definition of cleavage fragment in 3.12 that you use  
15:01:32 20 in your report?  
15:01:33 21 A. I don't believe we're -- ask the question  
15:01:38 22 again. Is that what we use in our report?  
15:01:40 23 Q. Let me take a step back.  
15:01:42 24 A. Is that the --  
15:01:42 25 Q. Do you use the phrase cleavage fragment in  
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15:01:45 **1** your report?  
 15:01:46 **2** MS. O'DELL: Object to form.  
**3** THE WITNESS: We have used cleavage in our  
 15:01:48 **4** report.  
 15:01:48 **5** **Q.** (By Mr. Chachkes) Okay. Cleavage  
 15:01:49 **6** fragment?  
 15:01:49 **7** **A.** **I want to say yes to that.**  
**8** **Q.** Okay.  
 15:01:51 **9** **A.** **I'd have to look, but I believe so, yes.**  
 15:01:53 **10** **Q.** When I read cleavage fragment in your  
 15:01:55 **11** report, is it the definition I'm reading in 3.12?  
 15:01:59 **12** **A.** **We would, again, refer to how it was --**  
 15:02:06 **13** **that it didn't meet the regulatory definition of**  
 15:02:09 **14** **parallel sides, less than 1/2 a micron, 5-to-1 aspect**  
 15:02:13 **15** **ratio.**  
 15:02:14 **16** **Q.** Okay. And you would say that in your  
 15:02:18 **17** report, something that is a fragment of a crystal  
 15:02:23 **18** that is bounded by cleavage faces is not a cleavage  
 15:02:27 **19** fragment if it has an aspect ratio of greater than  
 15:02:29 **20** 5-to-1?  
 15:02:30 **21** MS. O'DELL: Object to form.  
 15:02:31 **22** THE WITNESS: Correct. If it had the  
 15:02:32 **23** defining characteristics of the regulatory  
 15:02:34 **24** definition.  
 15:02:39 **25** MR. CHACHKES: Okay. No further  
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15:02:41 **1** questions.  
 15:02:42 **2** Subject to the same objection and  
 15:02:46 **3** complaint we had yesterday about late produced  
 15:02:49 **4** documents, I'll pass the witness.  
 15:02:52 **5** MS. O'DELL: You know our position. We  
 15:02:53 **6** don't believe they're late produced.  
 15:02:55 **7** MR. CHACHKES: I thought you were agreeing  
 15:02:56 **8** it was late produced, no?  
 15:02:56 **9** MS. O'DELL: I just wanted to make sure  
 15:02:58 **10** you didn't think my silence was acquiescence.  
 15:03:00 **11** We're opposed.  
 15:03:03 **12** EXAMINATION  
 15:03:04 **13** BY MR. SILVER:  
 15:03:05 **14** **Q.** Good afternoon, Dr. Rigler. My name is  
 15:03:05 **15** Mark Silver. I am representing Imerys Talc America.  
 15:03:06 **16** I only have a couple of questions for you.  
 15:03:09 **17** With my questions, after I ask them, make  
 15:03:10 **18** sure that your attorneys have a chance to respond.  
 15:03:13 **19** There are some based on off-record conversations they  
 15:03:16 **20** may or may not instruct you to answer and/or you  
 15:03:19 **21** won't feel comfortable answering.  
 15:03:21 **22** We're going to do what's known as making a  
 15:03:22 **23** record so that we can have a collegial disagreement  
 15:03:26 **24** at some hopefully later date and not today, but we'll  
 15:03:28 **25** see how it goes.  
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15:03:30 **1** The first one is easy. I just want to  
 15:03:30 **2** make sure that I understand an answer you gave  
 15:03:32 **3** earlier.  
 15:03:35 **4** It was my understanding that you were  
 15:03:36 **5** asked by Mr. Chachkes about whether you were working  
 15:03:39 **6** on something that you intended to be published in  
 15:03:43 **7** peer-reviewed literature relating to talc, and you  
 15:03:45 **8** responded you could not confirm or deny.  
 15:03:47 **9** Is that an accurate summarization of your  
 15:03:50 **10** testimony?  
 15:03:50 **11** **A.** **That is what I said.**  
 15:03:51 **12** **Q.** Okay. And my understanding is you cannot  
 15:03:53 **13** confirm or deny because you and/or MAS believe that  
 15:03:58 **14** work, if it exists, would be proprietary; is that  
 15:04:01 **15** correct?  
 15:04:01 **16** **A.** **And it's our policy also.**  
 15:04:03 **17** **Q.** Okay. So that work --  
 15:04:06 **18** **A.** **Yes.**  
 15:04:06 **19** **Q.** Is there a written policy on what MAS  
 15:04:09 **20** considers proprietary?  
 15:04:09 **21** **A.** **That's Dr. Longo's policy, so you'll have**  
 15:04:11 **22** **to discuss that with him.**  
 15:04:12 **23** **Q.** Okay. But have you ever seen a written  
 15:04:14 **24** policy on it?  
 15:04:15 **25** **A.** **I don't recall seeing one. But again,**  
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15:04:19 **1** **talk to Dr. Longo.**  
 15:04:20 **2** **Q.** Okay. But your understanding, because  
 15:04:22 **3** you're the one -- right now, your understanding is  
 15:04:24 **4** it's proprietary, and you got that understanding from  
 15:04:26 **5** a conversation with Dr. Longo?  
 15:04:28 **6** **A.** **It is proprietary --**  
 15:04:29 **7** MS. O'DELL: Object to form.  
 15:04:31 **8** THE WITNESS: -- and that's -- yeah, I  
 15:04:31 **9** have to abide by that.  
 15:04:32 **10** **Q.** (By Mr. Silver) But my question is you  
 15:04:35 **11** got that understanding because you had a conversation  
 15:04:37 **12** with Dr. Longo about it?  
 15:04:38 **13** **A.** **That's his policy. Yes.**  
**14** **Q.** Okay.  
 15:04:40 **15** **A.** **Yes.**  
 15:04:41 **16** **Q.** So I'm going to ask you something a little  
 15:04:44 **17** more discrete and let's see if we get -- if you give  
 15:04:48 **18** the same answer, you give the same answer.  
 15:04:49 **19** **A.** **All right.**  
 15:04:50 **20** **Q.** This work, whether you're doing it or not,  
 15:04:53 **21** that's intended to be published in peer-reviewed  
 15:04:57 **22** literature, does it have anything to do with any of  
 15:04:59 **23** the opinions contained in any of the MDL reports that  
 15:05:02 **24** have been produced in this case?  
 15:05:03 **25** MS. O'DELL: Object to the form.  
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15:05:04 **1** THE WITNESS: I can't answer that. I  
15:05:08 **2** don't have an answer for that.  
15:05:09 **3** **Q.** (By Mr. Silver) Okay. Same question,  
15:05:11 **4** does this work intending to be published in  
15:05:15 **5** peer-reviewed literature, if it's being done, have  
15:05:16 **6** anything to do with any of the samples that were  
15:05:22 **7** provided by Imerys in this litigation?  
15:05:25 **8** MS. O'DELL: Objection. Form.  
15:05:26 **9** THE WITNESS: Again, I can't -- I can't  
15:05:28 **10** answer that. You'll have to talk to Dr. Longo.  
15:05:31 **11** **Q.** (By Mr. Silver) All right. This work  
15:05:32 **12** that you're intending to be published in  
15:05:35 **13** peer-reviewed literature, whether or not it's being  
15:05:37 **14** done, is it being funded in any way directly or  
15:05:40 **15** indirectly by any of the plaintiffs' counsel?  
15:05:43 **16** **A. I don't know.**  
15:05:43 **17** **Q.** This work, whether it's being done or not,  
15:05:47 **18** with respect to being intended to be published in  
15:05:50 **19** peer-reviewed literature, are you working with any  
15:05:54 **20** other scientists or experts that are also working  
15:06:04 **21** on -- in this talc litigation?  
15:06:05 **22** MS. O'DELL: Object to the form.  
15:06:06 **23** THE WITNESS: I don't know what their --  
15:06:09 **24** how they're working, in what capacity that way.  
15:06:12 **25** I don't know.  
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15:06:13 **1** **Q.** (By Mr. Silver) Okay. This work, whether  
15:06:15 **2** it's being done or not, is it being worked in  
15:06:17 **3** conjunction with scientists outside of MAS?  
15:06:22 **4** **A. Yes. If it is, in fact.**  
15:06:25 **5** **Q.** If it is, in fact, being done.  
15:06:27 **6** I apologize, I don't have realtime here.  
15:06:37 **7** With respect to the work, if it is being  
15:06:41 **8** done on Imerys samples, do you have an  
15:06:47 **9** understanding -- strike that. I'll just state it.  
15:06:50 **10** To the extent there is work being done,  
15:06:53 **11** Imerys is hereby giving MAS notice verbally and will  
15:06:56 **12** follow it up in writing that it does not have Imerys'  
15:06:59 **13** consent to use any of the samples that was produced  
15:07:01 **14** in this litigation. If work's being done and you're  
15:07:03 **15** using it, MAS is on notice. Imerys will send  
15:07:07 **16** followup in writing.  
15:07:13 **17** One more.  
15:07:16 **18** Any of the work that's being done, if it's  
15:07:19 **19** being done with an intent to publish in a peer  
15:07:21 **20** review, does it have anything to do with any of the  
15:07:23 **21** underlying data used in any of the MDL reports?  
15:07:25 **22** **A. I don't know. I have no idea. I can't**  
15:07:29 **23** **make a comment on it.**  
15:07:34 **24** MR. SILVER: No further questions.  
15:07:35 **25** THE WITNESS: Thank you.  
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15:07:41 **1** MR. FROST: I don't have a mic.  
15:07:48 **2** MR. CHACHKES: Switch with me.  
15:07:48 **3** MS. O'DELL: So we've got second J&J  
15:07:50 **4** counsel?  
15:07:51 **5** MR. FROST: J&J is just joining in the  
15:07:52 **6** instruction that if there are any Johnson &  
15:07:55 **7** Johnson samples being used in the work that may  
15:07:56 **8** or may not be being done, you know, at this  
15:07:59 **9** point we do not consent to releasing any of the  
15:08:01 **10** confidentially on the samples that exist under  
15:08:03 **11** the MDL order.  
15:08:08 **12** MS. O'DELL: Any further questions  
15:08:10 **13** for Imerys?  
15:08:13 **14** Okay.  
15:08:13 **15** EXAMINATION  
15:08:16 **16** BY MS. O'DELL:  
15:08:16 **17** **Q.** Okay. Dr. Longo [sic], I've got just a  
15:08:28 **18** few questions for you.  
15:08:30 **19** Would you please describe for us your  
15:08:34 **20** educational background? Let's start there.  
15:08:36 **21** **A. I have a Bachelor of Science degree in**  
15:08:43 **22** **biology from Villanova University. And as I stated**  
15:08:46 **23** **before, this was a premedical curriculum, so it was**  
15:08:50 **24** **heavy on chemistry, organic chemistry. Also I think**  
15:08:56 **25** **I had comparative anatomy, all the typical**  
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15:09:01 **1** **undergraduate courses you have. But the ones that I**  
15:09:03 **2** **selected beyond that were related to the medical**  
15:09:06 **3** **field.**  
15:09:08 **4** **And then I have a Ph.D. from the**  
15:09:13 **5** **University of Georgia in microbiology and a heavy**  
15:09:18 **6** **emphasis in that on pathogenic organisms, also using**  
15:09:24 **7** **electron microscopy techniques in the analysis of**  
15:09:28 **8** **different types of samples.**  
15:09:30 **9** **Also have postgraduate training at the**  
15:09:33 **10** **University of Georgia, also -- we did a lot of**  
15:09:37 **11** **research projects for my major professor at that**  
15:09:42 **12** **time.**  
15:09:42 **13** **Then I also taught a semester course at**  
15:09:49 **14** **Emory University in human anatomy.**  
15:09:52 **15** **So you want me to go on some more?**  
15:09:55 **16** **Q.** You can stop when you're finished, when  
15:09:58 **17** you feel like you've described that. And if you --  
15:10:01 **18** well, let me break right here and just ask this  
15:10:02 **19** question.  
15:10:03 **20** Would you describe briefly your experience  
15:10:09 **21** in testing for the presence of asbestos?  
15:10:12 **22** **A. Okay. I've been with MAS since the early**  
15:10:20 **23** **'90s. I think I came to work there in 1989. And**  
15:10:25 **24** **we -- one of the first projects that I worked on**  
15:10:27 **25** **while I was there was the analysis of these Kent**  
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15:10:32 **1 filter cigarettes that had crocidolite asbestos in**  
15:10:36 **2 the filters, and that asbestos was in those filters**  
15:10:39 **3 up to 10 percent by weight. 10 percent. They were**  
15:10:43 **4 essentially solid crocidolite asbestos.**  
15:10:47 **5 One of the things that the manufacturers**  
15:10:51 **6 had touted was that they were -- how can I put it --**  
15:10:56 **7 the best cigarettes for human health, essentially.**  
15:10:59 **8 And if you talk to people that had smoked those, one**  
15:11:04 **9 of the complaints they had was the filter worked so**  
15:11:06 **10 well that all you got was hot air out of them, and we**  
15:11:09 **11 can see why.**  
15:11:10 **12 But nonetheless, we published a paper**  
15:11:13 **13 based on our findings in manipulating the way that a**  
15:11:19 **14 smoker would with those cigarettes to see if there**  
15:11:22 **15 were asbestos shed from those filters.**  
15:11:26 **16 Well, it turns out that we weren't the**  
15:11:28 **17 first ones that found that information out, that at**  
15:11:31 **18 the time there was a laboratory -- trying to remember**  
15:11:36 **19 the name -- Ernest Fullam laboratory who actually did**  
15:11:40 **20 work for the manufacturer, and they actually had**  
15:11:42 **21 looked at that smokescreen for asbestos and found**  
15:11:47 **22 that they had plenty of it coming out of there at the**  
15:11:50 **23 time. So what we did was a study where we quantified**  
15:11:53 **24 that amount.**  
15:11:54 **25 And then that was published rapidly in the**  
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15:11:57 **1 Journal of Cancer so that it could get out and people**  
15:12:01 **2 could know that if they had smoked these cigarettes**  
15:12:03 **3 before, it was time to talk to a doctor.**  
15:12:05 **4 So that was one of the first studies that**  
15:12:08 **5 I worked on on the asbestos side.**  
15:12:11 **6 The other, we developed a filter cassette**  
15:12:15 **7 at the laboratory that we were in the process of**  
15:12:18 **8 manufacturing, and so we were in that business for a**  
15:12:23 **9 while so I helped with that technology.**  
15:12:25 **10 But we also did things like testing**  
15:12:28 **11 batteries. I know that you've heard the Sears**  
15:12:31 **12 DieHard batteries. So we did tests on those**  
15:12:34 **13 batteries because they were coming back -- people**  
15:12:37 **14 were buying them and then the battery would die**  
15:12:39 **15 within a very short period of time, and the**  
15:12:43 **16 contention was that these batteries were defective.**  
15:12:46 **17 Well, what was happening was they were**  
15:12:47 **18 buying batteries from people, charging them up, and**  
15:12:50 **19 putting them back on the shelf. So we essentially**  
15:12:53 **20 proved that that was happening. And that was a large**  
15:12:55 **21 study that we did in the early '90s also. So it was**  
15:12:58 **22 a big materials analysis study.**  
15:13:01 **23 But over the years I've participated in**  
15:13:03 **24 hundreds of studies that have analyzed all kinds of**  
15:13:06 **25 particulates using the technologies that we have at**  
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15:13:08 **1 our laboratories. So not just asbestos, but, you**  
15:13:12 **2 know, other types of particulates.**  
15:13:13 **3 Q. Are the testing methodologies that are**  
15:13:18 **4 employed at MAS methodologies that are generally**  
15:13:23 **5 accepted?**  
15:13:23 **6 A. Yes.**  
15:13:25 **7 MR. CHACHKES: Objection. Leading.**  
15:13:26 **8 THE WITNESS: These are -- in cases where**  
15:13:31 **9 we're doing analysis, we're using standard**  
15:13:33 **10 methodologies. Whether it be mass**  
15:13:36 **11 chromatography, ion chromatography, all these**  
15:13:43 **12 are standard methods that we work, and we create**  
15:13:45 **13 SOPs from the standard methods. So they are**  
15:13:45 **14 incorporated into the actual methods that we**  
15:13:51 **15 use.**  
15:13:51 **16 And again, here in the asbestos analysis**  
15:13:54 **17 area, we have multiple standard methodologies**  
15:13:57 **18 that we use.**  
15:13:57 **19 Q. (By Ms. O'Dell) Have you employed those**  
15:13:59 **20 standard methodologies in your work in preparing the**  
15:14:03 **21 report for the MDL?**  
15:14:05 **22 MR. CHACHKES: Objection. Leading.**  
15:14:06 **23 THE WITNESS: Yes. Yes, we have. And**  
15:14:08 **24 they are all listed in the report.**  
15:14:10 **25 Q. (By Ms. O'Dell) You've talked today about**  
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15:14:12 **1 a quality control program that you have at MAS.**  
15:14:16 **2 Please describe that, you know, generally.**  
15:14:19 **3 A. Okay. The quality program for us to be**  
15:14:25 **4 certified by NVLAP NIST, National Institute of**  
15:14:30 **5 Standards and Technology, is essentially along the**  
15:14:33 **6 lines of what's called ISO 17025, which is**  
15:14:37 **7 methodologies for laboratories.**  
15:14:41 **8 And they have an entire suite of quality**  
15:14:46 **9 controls that you use for all of your**  
15:14:49 **10 instrumentation, for your calibration methods, and**  
15:14:53 **11 for the analysts, because in these cases, the**  
15:14:56 **12 analysts are essentially the machines. They're not**  
15:15:00 **13 like gas chromatographs; they are people, and the**  
15:15:03 **14 people have to be certified for the methods.**  
15:15:05 **15 So they are put through the rigors of**  
15:15:08 **16 actually extensive training in the beginning when**  
15:15:12 **17 they come to our laboratory, and then they have to**  
15:15:15 **18 take periodic tests, if you will, from the American**  
15:15:19 **19 Industrial Hygiene Institute, AIHA, and also NIST**  
15:15:25 **20 NVLAP. They'll send us blind samples, and then what**  
15:15:29 **21 we have to do is analyze them and identify them.**  
15:15:32 **22 So -- and we do the same thing for other**  
15:15:34 **23 programs. Like we do mold analysis, and we're part**  
15:15:37 **24 of the AIHA, American Industrial Hygiene**  
15:15:41 **25 Association's, certification for our laboratory.**  
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15:15:43 **1 We also have what's called A2LA. That's**  
 15:15:47 **2 another certifying body. They're all based upon the**  
 15:15:52 **3 ISO 17025 for laboratories. So it's very extensive**  
 15:15:56 **4 quality control.**  
 15:15:56 **5 Q.** For approximately how many years has MAS  
 15:16:00 **6** had a quality control program like you described?  
 15:16:03 **7 A. Since as long as I've been there.**  
 15:16:06 **8 Q.** So more than 30 years?  
 15:16:07 **9 A. Oh, yeah. Yeah.**  
 15:16:08 **10 Q.** What's your responsibility in the quality  
 15:16:10 **11** control process?  
 15:16:12 **12 A. Well, we have a quality control officer,**  
 15:16:17 **13 and my responsibility is to see that quality of**  
 15:16:26 **14 program's followed for the work that we do.**  
 15:16:29 **15 Now, I mean, the program's followed**  
 15:16:33 **16 according to the certifying body, so we have to**  
 15:16:37 **17 follow their protocols and standards. And so we just**  
 15:16:43 **18 have to be sure that we've documented all of our**  
 15:16:46 **19 activities for quality in all these areas.**  
 15:16:49 **20 Q.** Are the quality control standard  
 15:16:55 **21** procedures that you've described applied both in --  
 15:16:59 **22** are they applied in nonlitigation matters, I'm  
 15:17:02 **23** assuming?  
 15:17:02 **24 A. Yes.**  
 15:17:02 **25 Q.** Are they applied in litigation matters?  
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15:17:04 **1 A. Yes. They're applied in all matters of**  
 15:17:06 **2 analysis. So we -- I mean, machine calibration,**  
 15:17:15 **3 analyst training calibration, if you will, that way,**  
 15:17:19 **4 all of that has to be followed.**  
 15:17:21 **5 Q.** Is the methodology that you've used in  
 15:17:51 **6** rendering your opinions in this case the same  
 15:17:53 **7** methodology that you use in nonlitigation matters?  
 15:17:55 **8 A. Yes. Same standard types of methods.**  
 15:17:59 **9 Yes.**  
 15:17:59 **10 Q.** Is there anything -- strike that. Let me  
 15:18:03 **11** ask this.  
 15:18:03 **12** What was your responsibility in relation  
 15:18:07 **13** to the MDL report?  
 15:18:10 **14 A. As I stated earlier, it was report review,**  
 15:18:14 **15 documentation review. As far as data review, I had a**  
 15:18:20 **16 big portion of the data review. And then the quality**  
 15:18:23 **17 review.**  
 15:18:25 **18 Q.** Okay. You've been asked a number of  
 15:18:33 **19** questions about the policy at MAS regarding ongoing  
 15:18:46 **20** research or ongoing discussions about research --  
 15:18:50 **21 A. Yes.**  
 15:18:50 **22 Q.** -- and -- do you have an understanding as  
 15:18:56 **23** to why it is the policy at MAS not to discuss studies  
 15:19:00 **24** that have not been completed or still being  
 15:19:03 **25** formulated?  
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15:19:06 **1** MR. SILVER: Objection to form.  
 15:19:08 **2** THE WITNESS: Well, of course, there's  
 15:19:09 **3** client confidentiality, which we hold to the  
 15:19:13 **4** highest in terms of any discussions of any work  
 15:19:15 **5** that we're doing for anyone else. As you've  
 15:19:19 **6** seen today, I haven't talked about any clients  
 15:19:22 **7** that we work with, and can't do that.  
 15:19:24 **8** As far as publications, that type of  
 15:19:27 **9** thing, we don't -- again, that's just a policy.  
 15:19:31 **10** We had a bad experience a number of years ago,  
 15:19:35 **11** and since that time we've adopted that policy,  
 15:19:38 **12** and it's part of the confidential documentation  
 15:19:42 **13** that we keep.  
 15:19:49 **14** MS. O'DELL: Nothing further. Thank you.  
 15:19:53 **15** MR. CHACHKES: Nothing more here.  
 15:20:02 **16** MR. FROST: I just want to make it clear,  
 15:20:06 **17** until we can resolve this issue regarding the  
 15:20:08 **18** publication or the potential publication of  
 15:20:09 **19** these issues, we would like to and deem that  
 15:20:12 **20** this deposition remains open.  
 15:20:14 **21** MS. O'DELL: We oppose that, as I think  
 15:20:17 **22** the rule is very clear in terms of discovery of  
 15:20:20 **23** confidential proprietary matters, and Dr. Rigler  
 15:20:23 **24** has testified these are proprietary matters, and  
 15:20:27 **25** so we would oppose holding the deposition  
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15:20:29 **1** open --  
**2** MR. FROST: Sure. That's fine.  
 15:20:31 **3** MS. O'DELL: -- and certainly discovery.  
 15:20:34 **4** MR. FROST: Thank you.  
 15:20:36 **5** (Deposition concluded at 3:20 p.m.)  
**6** (Pursuant to Rule 30(e) of the Federal  
**7** Rules of Civil Procedure and/or O.C.G.A.  
**8** 9-11-30(e), signature of the witness has been  
**9** reserved.)  
**10** (Original transcript sent to Jack Frost.)  
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## 1 CERTIFICATE

2  
3 STATE OF GEORGIA:

4 COUNTY OF HALL:

5  
6 I hereby certify that the foregoing  
7 transcript was taken down, as stated in the  
8 caption, and the questions and answers thereto  
9 were reduced to typewriting under my direction;  
10 that the foregoing pages 1 through 228 represent  
11 a true, complete, and correct transcript of the  
12 evidence given upon said hearing, and I further  
13 certify that I am not of kin or counsel to the  
14 parties in the case; am not in the regular  
15 employ of counsel for any of said parties; nor  
16 am I in anywise interested in the result of said  
17 case.

18 This, the 8th day of February, 2019.

19  
20  
21 FRANCES BUONO, B-79122 Georgia Certified Court Reporter  
23  
24  
25

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## 1 DEPOSITION OF MARK W. RIGLER, PH.D. /FCB

2 I do hereby certify that I have read all  
3 questions propounded to me and all answers given by  
me on the 6th day of February, 2019, taken before  
Frances Buono, and that:

- 4 \_\_\_\_\_ 1) There are no changes noted.  
5 \_\_\_\_\_ 2) The following changes are noted:

6 Pursuant to Rule 30(e) of the Federal Rules of  
7 Civil Procedure and/or the Official Code of Georgia  
Annotated 9-11-30(e), both of which read in part:  
8 Any changes in form or substance which you desire to  
make shall be entered upon the deposition...with a  
9 statement of the reasons given...for making them.  
Accordingly, to assist you in effecting corrections,  
please use the form below:

10 Page No. \_\_\_\_ Line No. \_\_\_\_ should read: \_\_\_\_\_

11 Page No. \_\_\_\_ Line No. \_\_\_\_ should read: \_\_\_\_\_

12 Page No. \_\_\_\_ Line No. \_\_\_\_ should read: \_\_\_\_\_

13 Page No. \_\_\_\_ Line No. \_\_\_\_ should read: \_\_\_\_\_

14 Page No. \_\_\_\_ Line No. \_\_\_\_ should read: \_\_\_\_\_

15 Page No. \_\_\_\_ Line No. \_\_\_\_ should read: \_\_\_\_\_

16 Page No. \_\_\_\_ Line No. \_\_\_\_ should read: \_\_\_\_\_

17 Page No. \_\_\_\_ Line No. \_\_\_\_ should read: \_\_\_\_\_

18 Page No. \_\_\_\_ Line No. \_\_\_\_ should read: \_\_\_\_\_

19 Page No. \_\_\_\_ Line No. \_\_\_\_ should read: \_\_\_\_\_

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## 1 COURT REPORTER DISCLOSURE

2 Pursuant to Article 10.B. of the Rules and  
3 Regulations of the Board of Court Reporting of the  
Judicial Council of Georgia which states: "Each court  
4 reporter shall tender a disclosure form at the time  
of the taking of the deposition stating the  
5 arrangements made for the reporting services of the  
certified court reporter, by the certified court  
6 reporter, the court reporter's employer, or the  
referral source for the deposition, with any party to  
7 the litigation, counsel to the parties or other  
entity. Such form shall be attached to the  
8 deposition transcript," I make the following  
disclosure:

9 I am a Georgia Certified Court Reporter. I am  
10 here as a representative of Atlanta Reporters, Inc.  
Atlanta Reporters was contacted to provide court  
11 reporting services for the deposition. Atlanta  
Reporters will not be taking this deposition under  
12 any contract that is prohibited by O.C.G.A.  
15-14-37(a) and (b).

13 Atlanta Reporters has no contract/agreement to  
14 provide reporting services with any party to the  
case, any counsel in the case, or any reporter or  
15 reporting agency from whom a referral might have been  
made to cover this deposition. Atlanta Reporters  
16 will charge its usual and customary rates to all  
parties in the case, and a financial discount will  
17 not be given to any party to this litigation.

18  
19  
20  
21 FRANCES BUONO, B-79122 Georgia Certified Court Reporter  
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## 1 DEPOSITION OF MARK W. RIGLER, PH.D. /FCB

2 Page No. \_\_\_\_ Line No. \_\_\_\_ should read: \_\_\_\_\_

3 Page No. \_\_\_\_ Line No. \_\_\_\_ should read: \_\_\_\_\_

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9 Page No. \_\_\_\_ Line No. \_\_\_\_ should read: \_\_\_\_\_

10 Page No. \_\_\_\_ Line No. \_\_\_\_ should read: \_\_\_\_\_

11 If supplemental or additional pages are necessary,  
12 please furnish same in typewriting annexed to this  
13 deposition.

14 MARK W. RIGLER, PH.D.

15 Sworn to and subscribed before me,  
16 This the \_\_\_\_ day of \_\_\_\_, 20\_\_.

17 Notary Public  
18 My commission expires: \_\_\_\_\_

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